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Nursing interventions for sexual dysfunction: An integrative review for the psychiatric nurse

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ABSTRACT

Sexual dysfunctions are prevalent disorders in psychiatric patients that too often are not addressed by psychiatric-mental health nurses. An integrative review was conducted using PubMed, Joanna Briggs Institute, SCOPUS, PsycINFO and CINAHL databases to evaluate the evidence for independent, nursing interventions for sexual dysfunction across all nursing literature that could be implemented by psychiatric-mental health nurses. Out of 2448 articles, nine papers met inclusion criteria and were synthesized. Best available evidence was found for sexual teaching interventions for female sexual dysfunction. The implications for psychiatric-mental health nursing practice and recommendations for future research are discussed.

Background

Sexuality is integral to human experience, and likewise, sexual health is integral to holistic health (World Health Organization, 2006). Sexual health is an umbrella term for optimal physical, mental, emotional, and spiritual sexual well-being including sexual function, reproduction, identity, disease, and development (Pan American Health Organization & World Health Organization, 2000). Sexual dysfunction (SD), a small but important part of sexuality, is generally regarded as any problem with sexual desire, arousal, orgasm, or pain (Hatzimouratidis & Hatzichristou, 2007). The prevalence of SD in women has been estimated to be 40%–50%, whereas studies on SD in men reveal more variable rates with some dysfunctions having relatively low prevalence (1%–10% for delayed ejaculation) and others up to above 50% (i.e. erectile dysfunction where prevalence increases across the lifespan) (McCabe et al., 2016). Clearly, SD is relatively common and can have a negative impact on quality of life across diagnoses and age groups (Greenberg, Smith, Kim, Naghdechi, & IsHak, 2017).

Addressing SDs are within the scope and responsibilities of registered nurses (American Nurses Association, 2015) including psychiatric-mental health (PMH) nurses (American Nurses Association, American Psychiatric Nurses Association, & International Society Psychiatric Nursing, 2014). However, the nursing literature on SD is limited, with more research and attention given to sexual violence, sexual transmitted infections, and the promotion of healthy sexual practices (Macleod & Nhamo-Murire, 2016). The relative lack of literature on SD is not surprising considering nurses find it difficult to discuss sexual concerns with patients (Ayaz, 2013) and are often inadequately prepared to do so (Aaberg, 2016).

PMH nurses similarly struggle with their generalist nursing counterparts in discussing and intervening in SD (Quinn, Happell, & Browne, 2011). A recent systematic review found that PMH nurses encounter multiple barriers to the inclusion of sexuality in their practice such as fear that discussion of sexuality would be perceived as problematic; patients with mental illness are essentially de-sexualized; personal bias/discomfort on discussing sexual health topics; and lack of training to adequately address sexual concerns (Hendry, Snowden, & Brown, 2018). This is somewhat surprising since sexual function is a complex phenomenon reflecting an interaction between mind and body requiring that both be at an adequate state of health to perform (American Psychiatric Association, 2013). Discussing and delivering care for the patient with SD is a sensitive issue requiring well-developed interpersonal skills and good understanding of intrapersonal factors. These communication competencies are squarely within the expertise of the PMH nurse (D'Antonio, Beeber, Sills, & Naegle, 2014).

PMH nurses may be most familiar with SD in the context of psychotropic medication use. The adverse effects of many antidepressant and antipsychotic medications on sexual function are well-known, and are typically addressed by changing medication class or type (Montejo, Montejo, & Navarro-Cremades, 2015). Still, SD is a concern among mental health populations independent of medication-induced sexual side-effects. For example, a study of patients with schizophrenia not currently taking antipsychotic medication showed poorer sexual

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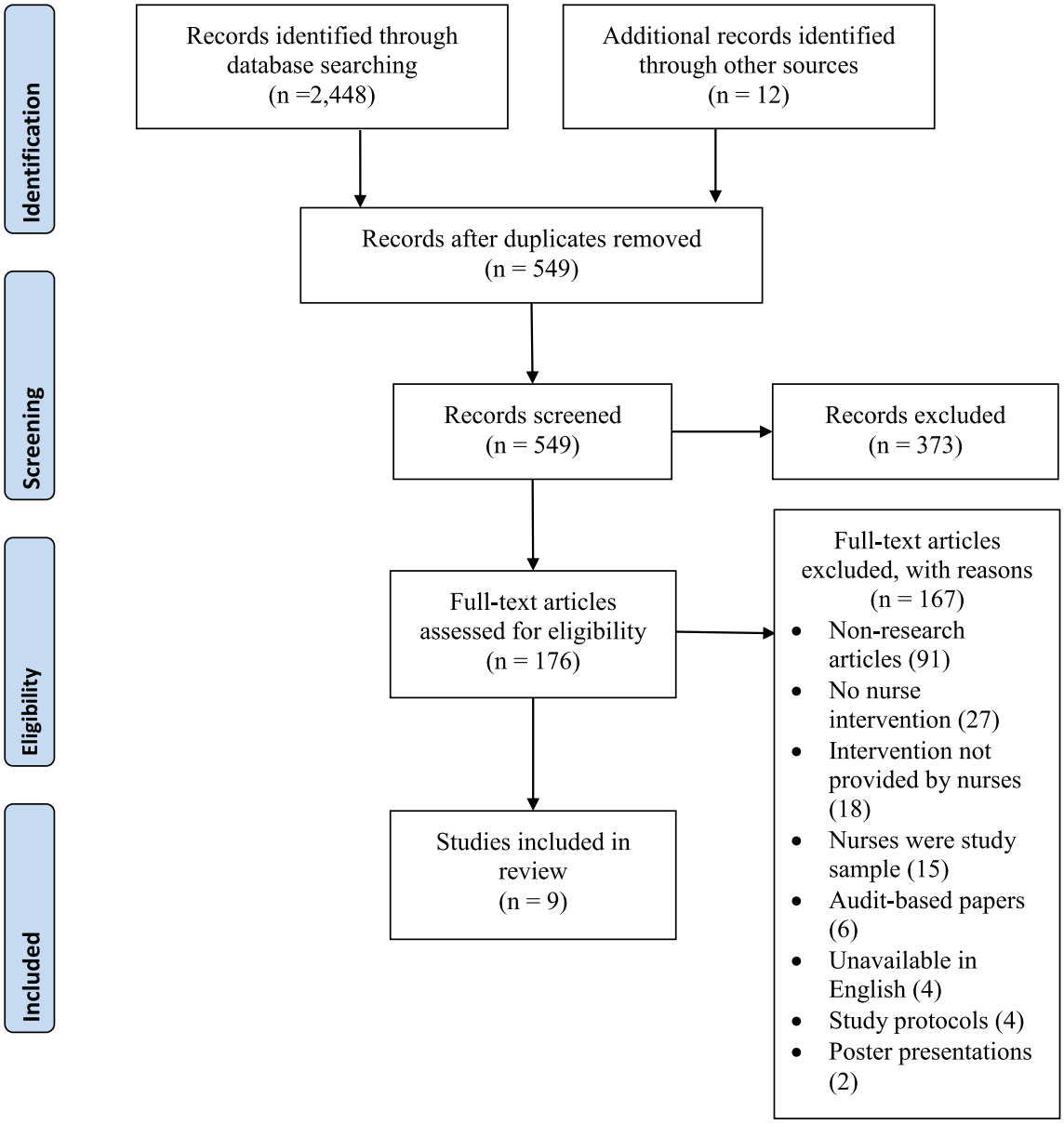

Fig. 1. PRISMA diagram.
Adapted from Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. PLoS Medicine, 6(7), e1000097. doi:https://doi.org/10.1371/journal.pmed.1000097 [doi].

function (including decreased sex drive and impaired orgasm) compared to healthy controls (Dembler-Stamm, Fiebig, Heinz, & Gallinat, 2018). A large-scale prevalence study of SD in patients with depression found similar rates of dysfunction in both those treated with an antidepressant (71%) and those untreated (65%), suggesting that depression itself contributes largely to SD (Bonierbale, Lancon, & Tignol, 2003). Similarly, the competing physiologic and cognitive changes associated with post-traumatic stress disorder (PTSD) inhibit sexual function (Yehuda, Lehrner, & Rosenbaum, 2015) as highlighted in a cohort study of male US veterans where those with PTSD had a threefold increased risk of comorbid SD (Breyer et al., 2014). Clearly medication is not wholly responsible for SD in these populations.

Based on this knowledge and the unique competencies of the mental health nurses, PMH nurse should be expected to provide care to a patient with SD beyond notifying the prescribing clinician. Yet, the nursing research in this area has been limited to describing nursing beliefs, attitudes, and assessment. Psychiatric mental health nursing care must move beyond initiating the conversation and assessment to implementing independent nursing interventions to treat SD; in fact, the nursing process demands it.

The goal of this integrative review is to identify evidence-based nursing interventions which can be provided by registered nurses (non-advanced practice) to manage SD in patients with mental health issues. Since a preliminary search of the literature found no evidence for mental health nurses delivering SD interventions, a review of all nursing research on SD interventions was performed, with the goal of identifying effective interventions which could be used in mental health nursing practice. The aim of this review is to determine if independent, nurse-delivered interventions are effective in improving sexual functioning in adults with sexual dysfunction. A secondary goal is to critically examine this evidence to determine if these interventions are applicable to patients with mental health issues, and if these can be effectively implemented by PMH nurses.

Methods

The literature searching for this review was conducted using PubMed, Joanna Briggs Institute (JBI), SCOPUS, PsycINFO, and CINAHL databases as outlined below. The primary inclusion criterion was being an intervention study where a registered nurse-delivered intervention was performed and its subsequent effects on patients' SD were evaluated. No time limits were applied at any point.

Keywords used for all databases were: nurs*, nurse, nursing and/or sexual dysfunction. Final search strings for PubMed, PsycINFO, and CINAHL also utilized database-specific, controlled vocabulary including: sexual dysfunction-psychological, sexual dysfunction-physiological, erectile dysfunction, school nurses, psychiatric nurses, public health nurses, female sexual dysfunction, sexual aids, genital disorders, sexual satisfaction, sexual function disturbances, sexual dysfunction-male, sexual dysfunction-NANDA, sexual dysfunction-SABA-CC, sexual and gender disorders, psychosexual disorders, sexual counseling, sexual counseling (IOWA NIC). Databases that did not have the option of a controlled vocabulary were completed more simply. SCOPUS and the JBI database searches were completed using nurse, nursing, and sexual dysfunction keywords with applied limits to title and subject area.

This search strategy resulted in 2448 articles. Twelve additional papers were identified for possible inclusion during the review of background materials and through citation chasing during full text screening. From this process, 686 articles were chosen based on potential relevancy to topic with 549 total articles available for title and abstract screening after duplicate removal. Using initial inclusion criteria of excluding any articles involving children or adolescents, care of the transgender patient, pharmacotherapy-focused, intervention delivered by non-nurse clinician or unrelated to the topic, 373 articles were removed. 176 articles remained eligible for full-text screening. Of the 176 articles, 167 were removed based on the following exclusion criteria: non-research articles (including editorials, reviews, and case studies) (n = 91); did not include a nurse-delivered intervention (n = 27); intervention not provided by (or exclusively provided by) generalist registered nurses (n = 18); nurses were the study sample (n = 15); audit or survey-based papers (n = 6); unavailable in English (n = 4); study protocols (n = 4); and poster-presentations lacking detail for critique (n = 2) (see Fig. 1)

As noted, inclusion criteria stipulated that articles were required to explicitly describe that a registered nurse (non-advanced practice) was delivering the study intervention and the role they played. Five articles appeared appropriate in content and design, but lacked sufficient explanation of potential nurse involvement and practice level. E-mail communication to the corresponding author for each of these studies to elucidate the nursing role was attempted. Only one response was received, and all five articles were disqualified from inclusion in review. Ultimately, nine papers were deemed acceptable for analysis following this comprehensive search (see Table 1). Articles were assigned levels of evidence (see Table 2) and graded with critical appraisal tools based on Joanna Brigg's Institute Level of Evidence schema (2014). No studies were excluded based on level of evidence.

Results

Study characteristics

Studies included in this review were diverse in their settings of origin: Asia (n = 3), Europe (n = 2), Australia (n = 2), and North America (n = 2). The sex of the participants represented in this review was fairly equal with 625 males and 691 females making up the total 1316 participants initially recruited. Age ranges across studies were larger for women (18–82) compared to men (46–84). The age distribution seen in these papers reflects previous findings that SD in men is more age dependent whereas women may have a greater lifetime risk (McCabe et al., 2016). Two studies focused exclusively on men, four studies focused exclusively on women, and three studies included a partner or family member.

Often SD was studied in the context of disease-dependent states. All studies with male participants were focused on prostate cancer (n = 4). Female SD was varied, with gynecologic cancer (n = 2), multiple sclerosis (n = 1), postpartum (n = 1) and general dysfunction (n = 1) all comprising sample populations. Clearly, the specialty of oncology (and likely in the case of men, urology) nursing has contributed greatly to the evidence. This could be explained by the understanding that SD is a common side effect of cancer treatment, and the anticipation of this dysfunction has motivated nursing to be more involved in this care (Gaither et al., 2017; Sekse, Hufthammer, & Vika, 2017).

Some studies offered additional demographic and training details of the nurses providing the intervention. Most were described as practicing nurses with considerable experience in their given specialty (Chambers et al., 2015; Chow, 2013; Hakanson et al., 2014; Lee & Tsai, 2012). Additional training to deliver the intervention was described in the studies by Chambers and colleagues (2015) and Lee and Tsai (2012). Only one study provided detail on the process of recruiting and training nurses without prior specialized experience in delivering an intervention for SD in men with prostate cancer (Watson et al., 2018). These nurses received two days of comprehensive training in both the intervention and general prostate cancer education.

Interventions

Across this literature, nursing interventions were delivered using a variety of methods. Face-to-face appointments in healthcare settings (n = 7) were most common, followed by telephone interventions (n = 6). Written materials were significant components of intervention in two studies but were utilized in many (n = 6). As stated above, three of the nine studies included patient and partner/family member as part of the study design, but only one study (Chambers et al., 2015) aimed to improve and actually measured sexual functioning at the partner level. Group intervention format and in-home education were both only used once in two separate studies. All studies used some combination of the above modalities.

The length of the studies, including follow-up, ranged from six weeks to twelve months with majority of studies being six months or less. With respect to the duration of the intervention, two studies utilized a single, nurse-education appointment (Hakanson et al., 2014; Lee & Tsai, 2012). All other studies used multiple encounters with three to four appointments (n = 5) being most often used, followed by six to eight appointments (n = 2). The amount of time spent in each nursing encounter, when described, varied greatly. Three studies had initial nursing encounters of 60 min or greater (Afiyanti et al., 2016; Hakanson et al., 2014; Watson et al., 2018). Three other studies described intervention delivery time ranging from fifteen minutes to thirty minutes (Chambers et al., 2015; Christopherson et al., 2006; Lee & Tsai, 2012).

Across these studies, the concrete, specific nursing actions conducted during these interventions was not often well-described, however education and information-giving was a part of all nurse-delivered care. To distinguish between nurse-teaching on SDs vs. nurse-delivered sexual counseling, the authors utilized the definition of Gamel, Davis, and Hengeveld (1993) where sexual teaching is a short-term interaction focused on nurse-identified goals for learning/provision of information, and sexual counseling is focused on patient-identified goals delivered through long-term, serial interactions. Applying this definition to the available description present in each study, six studies employed sexual teaching (Afiyanti et al., 2016; Chow, 2013; Christopherson et al., 2006; Hakanson et al., 2014; Lee & Tsai, 2012; Lombrana et al., 2012) and three used a sexual counseling method (Chambers et al., 2015; Mishel et al., 2002; Watson et al., 2018). Within each category (sexual teaching vs. counseling), nursing interventions were further described based on their use of specific frameworks and/or skills as available.

Several studies provided a conceptual framework that guided the

Table 1
Table of evidence for independent, nurse-delivered interventions for sexual dysfunction.

Authors & date	JBI level of evidence (see Table 2)	Study objectives	Methods				Key findings with statistics
			Sample	Design & length	Independent variables	Dependent variables	
Afiyanti, Rachmawati, & Milanti, 2016	2.d	Evaluate the effectiveness of an educational nursing intervention program on the sexuality of cancer survivors	53 cervical cancer survivors and their spouses	One-group pre/post-test design 6 weeks	3 educational sessions delivered both in clinic and at home by a nurse Content of sessions focused on sexuality and cervical cancer education, relaxation skills, sensate focus, sexual position education, use and provision of lubricant, and communication skills	Sexual arousal, desire, vaginal lubrication, orgasm, sexual activity satisfaction, and dyspareunia as measured by the FSFI at baseline and 6 weeks (translated into Indonesian)	Nursing intervention improved dyspareunia (β = 0.910), vaginal lubrication (β = 0.500), orgasm (β = 0.419), sexual arousal (β = 0.410), sexual desire (β = 0.330), and sexual satisfaction (β = 0.164) (separate logistic regressions run for each dependent variable including intervention and other demographics)
Chambers et al., 2015	1.c	Compare peer intervention, nurse counseling, and usual care effects on sexual dysfunction and psychosocial adjustment	189 couples with men who were scheduled for or had undergone prostate cancer surgery within 12 months	Randomized controlled trial 12 months	6–8 nurse-delivered telephone appointments using principles of CBT, sex/couples therapy (n = 62) 6–8 peer-delivered telephone appointments using shared personal experience and education (n = 63) Usual care group with standard medical management and published education materials (n = 64)	Utilization of treatments for erectile dysfunction as measured by self-report instrument at baseline, 3, 6, and 12 months. Scale Sexual function and satisfaction as measured by the IIEF (men) of FSFI (women) at baseline, 3, 6, and 12 months. Sexual supportive care needs as measured SS-SCNS at baseline, 3, 6, and 12 months. Sexual self-confidence as measured by PIED-SE tool at baseline, 3, 6, and 12 months.	Peer intervention group 3.14 times more likely to use ED treatments than usual care (z = 2.41; p = 0.016) Nurse intervention group 3.67 times more likely to use ED treatments than usual care (z = 2.64; p = 0.008) Nurse intervention group was 4.05 times more likely to use oral medication compared to usual care (z = 3.15; p = 0.002) No significant difference between intervention groups
Chow, 2013	1.c	Compare a psychoeducational intervention to an attention control on sexual functioning and other psychosocial outcomes	26 women with gynecological cancer scheduled for treatment surgery	Randomized controlled trial with mixed-methods. 8 weeks	Psychoeducation intervention program delivered by a nurse in four sessions (combination of information giving, relaxation therapy, and psychological support) in face-to-face, telephone, and group counseling format (n = 13) Attention-control group received four sessions of meeting with the nurse in same formats but for facilitated free discussion but without any intervention. (n = 13)	Sexual interest, lubrication, orgasm, sexual satisfaction, dyspareunia, vaginal problems, intimacy, partner sexual problems, and body image as measured by SVQ (translated into Chinese) only measured post-intervention Experience and feelings related to the intervention assessed through semi-structured interviews	No significant differences in sexual functioning found between groups Qualitative data showed that the psychoeducational intervention resulted in less anxiety about sexual activity
Christopherson, Moore, Foley, & Warren, 2006	1.c	Compare the effects of proactive vs. interactive intervention on sexual dysfunction	62 heterosexual women with multiple sclerosis	Randomized controlled trial 6 months	Written materials on sexual dysfunction in multiple sclerosis (proactive) (n = 31) Sexual teaching counseling provided by a clinic nurse in one face-to-face appointment and two telephone sessions plus the above written materials (interactive) (n = 31)	Genital numbness, sensation, lack of desire, less intense orgasm, delayed orgasm, inadequate lubrication, muscle spasms, bladder/bowel symptoms, tremors, pain/discomfort, movement problems, dependency, satisfaction, confidence feeling less feminine, fear of rejection, worry about satisfying partner, and lack of confidence as measured by the MSISQ-19 at baseline and 6 months	Both groups experienced improvements in desire, orgasm, lubrication, genital numbness and delayed orgasm (F(1) = 14.79, p < 0.001) Non-significant trend toward improvements in confidence in sexuality and reduced worry about partner satisfaction in counseling groups over written materials group (F(1) = 2.88, p = 0.096)

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Table 1 (*continued*)

Authors & date	JBI level of evidence (see Table 2)	Study objectives	Methods				Key findings with statistics
			Sample	Design & length	Independent variables	Dependent variables	
Hakanson, Douglas, Robertson, & Lester, 2014	2.d	Explore the effect of a rural, nurse-led clinic on sexual dysfunction	111 adult women with sexual dysfunction	One-group pre−/post-test, experimental design 6 months	A single, one-hour sexual teaching appointment with a registered nurse guided by the PLISSIT model	Sexual interest, frequency of sexual activity, vaginal lubrication, orgasm, and satisfaction with sexual partner as measured by MFSQ at baseline, 1, and 6 months	One-month post-appointment: significant increase in sexual interest ($p < 0.001$), satisfaction with frequency of sexual activity ($p = 0.008$) and orgasm ($p = 0.001$) Six months post-appointment: significant increase in sexual interest ($p < 0.001$), satisfaction with frequency of sexual activity ($p = 0.001$) orgasm ($p = 0.011$), satisfaction with sexual partner ($p = 0.037$)
Lee & Tsai, 2012	1.c	Compare a theory-based sexual health education program, interactive sexual health pamphlet, and routine education on improving sexual function	250 postpartum women	Randomized controlled trial 3 months	Interactive postpartum sexual health education program with individual nurse education and interactive pamphlet (IPSHEP) tailored to participants readiness for change (n = 70) Interactive postpartum sexual health pamphlet only (n = 92) Routine education from nurse with a non-interactive sexual health pamphlet (n = 88)	Sexual self-efficacy measured by 26-item SSE subscale at 3 days postpartum and 2 months postpartum Return sexual activity as measured by self-report items at 2 and 3 months Diversity of sexual activity as measured by researcher-design scale at 3 months Sexual satisfaction as measured by Likert scale at 3 months postpartum	IPSHEP group improved sexual self-efficacy significantly more compared to pamphlet group ($p = 0.011$) and the routine group ($p = 0.02$) IPSHEP group resumed sexual activity earlier compared to routine group (odds ratio (95% CI) =0.432 [0.205–0.905]) IPSHEP group improved diversity of sexual activity significantly compared to pamphlet group ($p < 0.05$) and routine group ($p = 0.04$) IPSHEP group was able to maintain but not improve sexual satisfaction compared to pamphlet and routine group where sexual satisfaction decreased
Lombrana, Izquierdo, Gomez, & Alcaraz, 2012	2.d	Determine the prevalence of erectile dysfunction in a sample who had radical prostatectomy and evaluate the effect of an erectile dysfunction nurse program	114 men who underwent radical prostatectomy for prostate cancer	One-group, pre−/post-test study 12 months	4 + sexual teaching appointments with the erectile dysfunction nurse where ED education, ED treatment education, active listening, and collaboration with healthcare team occurred	Erectile function, orgasm, sexual desire, and satisfaction as measured by the IIEF at one month and 12 months Utilization of medical treatments for ED	In comparison to baseline, scores in all domains were worse one-month post-surgery with the exception of overall satisfaction At one year, improvements from 1 month on all outcomes except, overall satisfaction, however only sexual desire returned to baseline pre-surgery levels.
Mishel et al., 2002	1.c	Compare the efficacy of an individual vs supplemented telephone-based, counseling educational intervention with usual care on sexual function and satisfaction	239 African-American (AA) (n = 105) and Caucasian men (n = 134) with prostate cancer	Randomized controlled trial 7 months	Individual participants received uncertainty management psychoeducational, counseling intervention delivered via 8 weekly telephone calls from a nurse. Individual and family member (partner or designated family member) received same intervention Control group received usual care and printed health information Group size not reported within study	Erectile function and sexual function satisfaction as measured by the SDS-15 at 4 and 7 months post-surgery or radiation therapy.	At 4 months, AA men receiving supplemented intervention had improved sexual function satisfaction vs. control ($p = 0.01$). At 7 months, sexual function satisfaction in AA men receiving supplemented intervention was less than those receiving individual intervention ($p = 0.04$) or those receiving control intervention ($p = 0.02$) Trend toward improvement in AA men in supplemented group in

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Table 1 (*continued*)

Authors & date	JBI level of evidence (see Table 2)	Study objectives	Methods				Key findings with statistics
			Sample	Design & length	Independent variables	Dependent variables	
							erectile function between 4 months and 7 months (p = 0.08)
Watson et al., 2018	1.c	Compare the effects and feasibility of a nurse-led psychoeducational intervention in comparison to usual care for cancer treatment side-effects	83 men with prostate cancer	Randomized, controlled trial with mixed-methods design 9 months	Psychoeducation, sexual counseling intervention delivered by nurses through one face-to-face appointment and then either telephone or face-to-face follow-up focused on self-management approaches for urinary, bowel, sexual dysfunction and hormone-related problems (n = 42) Control group received usual care (n = 41)	Incontinence, erectile dysfunction, sexual frequency and satisfaction as measured by EPIC-26 at baseline and 7 months	Sexual function scores improved in both intervention and control groups but were not statistically significant Qualitative interviews highlighted how some participants found the nurse a comfortable professional to talk about sexual problems with, which had improved their sexual function

Note. EPIC-26 = Expanded Prostate Cancer Index Composite-26 item version, FSFI = Female Sexual Function Index, IIEF = International Index of Erectile Function, MFSQ = McCoy Female Sexuality Questionnaire, MSES = Masculine Self-Esteem Scale, MSISQ-19: Multiple Sclerosis Intimacy and Sexuality Questionnaire-19, PIED-SE = Psychological Impact of Erectile Dysfunction-Sexual Experience, SDS-15 = Symptom Distress Scale, SS-SCNS = sexuality subscale of the Supportive Care Needs Survey, SVQ = Sexual Functions-Vaginal Changes Questionnaire-extended version.

nursing intervention targeting SD. For example, Mishel and colleagues used a counseling intervention underpinned by Uncertainty in Illness Theory (Mishel, 1988) where nursing care was aimed at improving cognitive reframing, problem solving, communication and knowledge of illness to reduce uncertainty and improve problem-focused coping (2002). This approach allowed for SD to be explored as a product of illness coupled with techniques for its management. Uncertainty management was also used in a sexual teaching program study by Chow (2013) along with The Buffering Hypothesis (Cohen & Wills, 1985), another theoretical approach that emphasizes how social support mitigates stress. One study used Bandura's Social Cognitive Theory (1977) to design a nurse-delivered counseling intervention for prostate cancer where self-management strategies were explored along with patient's thoughts and behaviors (Watson et al., 2018). Intervention models provided the framework for nursing care in two additional studies. The Permission, Limited Information, Specific Suggestions, Intensive Therapy (PLISSIT) model (Annon, 1976), a popular model to guide intervention in SD emphasizing a step-wise strategy, was mentioned in one study involving a nurse-led SD teaching appointment for rural women (Hakanson et al., 2014). Prochaska's transtheoretical model (Prochaska & Velicer, 1997) was also used to address postpartum sexual health by guiding nursing action based on readiness for behavior change and the use of a sexual teaching intervention (Lee & Tsai, 2012).

In several studies, nurses taught patients specific skills to manage SD. Skills mentioned in this body of evidence were classified into three different categories: behavioral, cognitive, and treatment strategies. Behavioral strategies included alternative forms of sexual expression/intercourse (n = 3), relaxation skills (n = 2), and sensate focus exercises (n = 1). Cognitive interventions used included problem-solving and reframing education (n = 3). Treatments included not only education on prescription drugs (oral erectile dysfunction medications, penile injections) (n = 4) but also mechanical methods (lube, vacuum devices) (n = 2), and physical exercises (pelvic floor exercises) (n = 3).

Study methods

The quality of the studies was assessed using the JBI Critical Appraisal Tools. The checklist for randomized controlled trials (RCT) was used for all RCT studies (n = 6) (http://joannabriggs.org/assets/docs/critical-appraisal-tools/JBI_RCTs_Appraisal_tool2017.pdf) and the checklist for quasi-experimental (QE) studies was used for all QE studies (n = 3) (http://joannabriggs.org/assets/docs/critical-appraisal-tools/JBI_Quasi-Experimental_Appraisal_Tool2017.pdf) (Tufanaru, Munn, Aromataris, Campbell, & Hopp, 2017). Checklists were then compared and combined for a more global assessment of bias or error in the body of evidence. No RCTs blinded patient or nurse during intervention delivery which was understandable given the nature of sexual teaching/counseling (Chambers et al., 2015; Chow, 2013; Christopherson et al., 2006; Lee & Tsai, 2012; Mishel et al., 2002; Watson et al., 2018). No QE studies included a control group which could have contributed to bias given the single-group design (Afiyanti et al., 2016; Hakanson et al., 2014; Lombrana et al., 2012). All studies with comparison groups reported similar patient characteristics at baseline (Chambers et al., 2015; Chow, 2013; Christopherson et al., 2006; Lee & Tsai, 2011; Mishel et al., 2002; Watson et al., 2018).

Intention-to-treat analysis was used in three studies (Chambers et al., 2015; Chow, 2013; Christopherson et al., 2006). Attrition and lack of follow up was reported in several studies. The number of patients lost to follow up and reasons for drop-out were often described, but separate analysis comparing these groups to those remaining in the study were not reported in any study. Two studies had an attrition rate of 30% or greater at final outcome measurement (Hakanson et al., 2014; Lee & Tsai, 2012), and an additional two studies did not explicitly report attrition or retention rates raising concern of bias (Afiyanti et al., 2016; Lombrana et al., 2012). However, most studies reported high retention rates (> 70%) with two studies having 95% retention in

Table 2
Joanna Briggs Institute levels of evidence for effectiveness.

Levels	Design
Level 1	Experimental designs
1.a	Systematic review of Randomized Controlled Trials (RCTs)
1.b	Systematic review of RCTs and other study designs
1.c	RCT
1.d	Pseudo-RCTs
Level 2	Quasi-experimental designs
2.a	Systematic review of quasi-experimental studies
2.b	Systematic review of quasi-experimental and other lower study designs
2.c	Quasi-experimental prospectively controlled study
2.d	Pre-test – post-test or historic/retrospective control group study
Level 3	Observational – analytic designs
3.a	Systematic review of comparable cohort studies
3.b	Systematic review of comparable cohort and other lower study designs
3.c	Cohort study with control group
3.d	Case – controlled study
3.e	Observational study without a control group
Level 4	Observational – descriptive studies
4.a	Systematic review of descriptive studies
4.b	Cross-sectional study
4.c	Case series
4.d	Case study
Level 5	Expert opinion and bench research
5.a	Systematic review of expert opinion
5.b	Expert consensus
5.c	Bench research/single expert opinion

Note. Adapted from "New JBI Levels of Evidence" by The Joanna Briggs Institute Levels of Evidence and Grades of Recommendation Working Party. (2014). *Supporting document for the Joanna Briggs Institute levels of evidence and grades of recommendations*. Adelaide, Australia: The Joanna Briggs Institute. Retrieved from http://joannabriggs.org/assets/docs/approach/JBI-Levels-of-evidence_2014.pdf

intervention groups (Mishel et al., 2002; Watson et al., 2018).

The tools used for measurement of SD varied widely across the studies, especially for women, for whom the Female Sexual Function Index (FSFI) (Rosen, Heiman, Leiblum, Meston, & Shabsigh, 2000) tool was the most commonly used (Afiyanti et al., 2016; Chambers et al., 2015). The International Index of Erectile Function (IIEF) (Rosen et al., 1997) tool was used in two studies to assess SD in men (Chambers et al., 2015; Lombrana et al., 2012). Other tools used were either SD assessments imbedded in other disease-specific scales (i.e. the Multiple Sclerosis Intimacy and Sexuality Questionnaire-19 used by Christopherson et al., 2006) or novel tools developed by researchers for their study.

The lack of baseline pre-intervention assessments was a weakness in three studies. Chow (2013) only measured sexual functioning post-intervention which allowed for between-group comparisons. Mishel et al. (2002) and Lee and Tsai (2012) also lacked baseline data for this outcome, but did provide multiple post-intervention assessments enabling consideration of time effects for their respective interventions. Of note, these three studies also used sexual function assessments that were developed in the context of diagnosis-specific scales.

Effectiveness of nurse interventions

To allow for better synthesis of intervention effects on SD, findings (both significant and non-significant trends) were categorized based on broad components of sexual functioning such as desire, arousal, orgasm, pain, satisfaction, and use of medical treatments for dysfunction. As noted previously, these outcomes were frequently measured using different tools and are organized nominally. Three studies included qualitative or descriptive data providing some additional insight into nurse-delivered care.

Only outcomes and findings related to sexual function are reported and discussed in this review, but it is important to note that the majority of studies measured other outcomes as part of their design outside of SD. Other outcomes were typically diagnosis-dependent or psychosocial factors specific to the study (e.g. marital satisfaction, quality of life). Interventions deemed most effective were those that had a significant effect on components of sexual functioning outcome post-intervention.

Desire

Four studies reported findings with an effect on sexual desire and/or interest; all studies in this category were considered to be sexual teaching interventions. Comparing nurse teaching with written materials to written materials alone, one study (the only RCT in this category) found that both groups experienced significant improvements in sexual desire ($p < 0.001$) (Christopherson et al., 2006). The three remaining papers utilized QE designs. Hakanson, Douglas, Robertson, and Lester reported a significant improvement in sexual interest at both one ($p < 0.001$) and six months ($p < 0.001$) following a single nurse, educational appointment (2014). The other two studies offered only descriptive statistics reporting a return to mean pre-surgery scores of sexual desire (Lombrana et al., 2012) or logistic regressions reporting an improvement on desire with the nurse intervention (Afiyanti et al., 2016). Thus, in the domain of desire, this body of evidence suggest that nurse-delivered, sexual teaching is effective at improving sexual desire in females but no demonstrated significant effect on desire in males.

Arousal

Sexual arousal was categorized to include measurements based on sexual arousal, vaginal lubrication and erectile function. The only sexual counseling RCT in this category found a trend toward significant improvement in erectile dysfunction in African American men in a supplemented, telephone intervention ($p = 0.08$) (Mishel et al., 2002). As with desire, a RCT with nurse-teaching vs. written materials alone found significant improvements in lubrication in both groups ($p < 0.001$) (Christopherson et al., 2006). Afiyanti et al. (2016) reported their nurse, educational intervention program accounted for improvements in both arousal and vaginal lubrication. Similar to findings with desire, nurse-delivered sexual teaching appears to be most effective at improving arousal in females, specifically lubrication. Interestingly, both of the above studies with effect on lubrication included some adjunct materials with nursing care. Afiyanti et al. (2016) physically provided lubricant to women with gynecologic cancer while Christopherson et al. (2006) included a pamphlet by Barrett (1999) within their written materials that explicitly discussed and suggested vaginal lubricant for women with multiple sclerosis. Relatively simple actions such as discussion of vaginal lubrication and provision of lubricant may be significant interventions for nurses to employ.

Orgasm

All studies reporting effects on orgasmic function were also sexual teaching interventions. Nurse intervention had the same significant improvements compared to written materials alone ($p < 0.001$) for orgasmic function (Christopherson et al., 2006). Significant improvement in orgasm scores were also observed at one month ($p = 0.001$) and six months ($p = 0.011$) post-nurse educational intervention in a rural, SD clinic (Hakanson et al., 2014). Nurse teaching intervention also improved orgasm function in patients with gynecologic cancer (Afiyanti et al., 2016). No papers evaluating nursing interventions for premature or delayed ejaculation were found during the search process of this review; as such, all participants within this category were female. Nurse-delivered sexual teaching appears to be effective at improving orgasmic dysfunction in female participants.

Sexual response is often represented as a cycle with sufficient desire and arousal required for orgasm. Two of the above studies (Afiyanti et al., 2016; Christopherson et al., 2006) also demonstrated effects on

desire and arousal domains suggesting that targeting earlier stages in the response cycle may lead to improved orgasmic function through downstream effects. This also highlights the necessity of nurses to improve their own knowledge of sexual function not only to provide quality education but to also better understand how they can influence SD by addressing the sexual experience as a whole.

Pain

Afiyanti et al. (2016) found their nurse education intervention had greatest effect on relieving dyspareunia compared to all other SD outcomes. This was the only study reporting any influence on sex-related pain. Like many other studies, the above intervention employed a sexual teaching technique, but again, the unique provision of lubricant with nurse-delivered education may account for the dramatic improvement in pain associated with sexual intercourse. A study in Canada had similar findings when the researchers provided lubricant to women with dyspareunia with most women finding it helpful at alleviating pain associated with vaginal dryness (Sutton, Boyer, Goldfinger, Ezer, & Pukall, 2012).

Satisfaction

The largest number of studies demonstrated improvements in this category. However, this finding could be attributed to the variable definitions of satisfaction utilized by investigators. The majority of these studies included sexual teaching interventions with the exception of a RCT conducted by Mishel et al. (2002) where African-American men in the supplemented-counseling intervention group experienced significant improvement in sexual satisfaction compared to control ($p = 0.01$) at four months; however, this effect did not continue at seven-month follow-up. Hakanson et al. (2014) found that satisfaction with sexual frequency was improved at one month ($p = 0.008$) following an educational intervention, and at six months, both frequency ($p = 0.001$) and satisfaction with partner ($p = 0.037$) were significantly improved. Lee and Tsai (2012) found that nurse education with an interactive pamphlet allowed postpartum mothers to maintain sexual satisfaction whereas the control group experienced diminished satisfaction. Nurse-intervention showed a trend toward improvement in sexual confidence compared to written materials ($p = 0.096$) but was non-significant (Christopherson et al., 2006). The use of a framework to guide intervention was present in three out of four studies, and sexual teaching interventions were found to be most effective at improving some aspect of sexual satisfaction in female participants.

Medical treatments for sexual dysfunction

The utilization of SD treatments, while not an aspect of SD itself, is certainly an opportunity for nurse intervention. A single high-quality RCT by Chamber and colleagues (2015) found that patients who received nurse-delivered sexual counseling were more likely to use medical treatments for erectile dysfunction ($p = 0.016$) and specifically oral drug treatments ($p = 0.002$) compared to control group.

Even though this category contains only one study, this is still considered a significant result taking into account the quality of this evidence. The interfacing of the generalist nurse and medication is common across all nursing practice and a focus in nursing education. Nurses may feel more readily comfortable and prepared to intervene at this level since it mirrors “typical” practice closely. Pharmacotherapy is a cornerstone of treatment for erectile dysfunction, and as the above study suggests, nurse-delivered sexual counseling can be an effective intervention for increasing adherence to medication regimens in male patients.

Qualitative and descriptive data

Lombrana et al. (2012) found that all patients who started penile injections for erectile dysfunction reached out to the intervention nurse for additional assistance and to address their doubts regarding treatment. Watson et al. (2018) and Chow (2013) showed similar findings in their qualitative data with participants finding the intervention nurses knowledgeable and comforting professionals whose care they appreciated when discussing sexual concerns.

These qualitative data support the nurse as a sexual health clinician. The lived experience of the participants in the pilot study by Watson et al. (2018) highlighted the healing and inviting environment that the study nurses fostered which allowed them to be open about their SD. Further, it is contributes to the concept of nursing presence, a phenomenon where the therapeutic connection between the nurse and patient develops through intentional caring activities allowing for meaning and healing to take place (Covington, 2003). The presence of nursing in multidisciplinary care of SD is important in contemporary health systems since nurses have the availability and skills needed to develop these relationships and use them as means of intervention.

Discussion

All studies reported at least one positive outcome associated with the research intervention, but few demonstrated statistically significant improvements in sexual functioning at the conclusion of the studies. The most dramatic improvements in sexual function were found in lower level, QE studies (Afiyanti et al., 2016; Hakanson et al., 2014). More rigorous studies tended to have fewer significant outcomes or sustained effects on sexual function (Chambers et al., 2015; Chow, 2013; Lee & Tsai, 2012; Mishel et al., 2002; Watson et al., 2018). Studies that were more specifically focused on SD also tended to have better outcomes compared to studies with multiple targets and outcomes. Placing SD as a primary aim may have improved intervention design that more appropriately addressed sexual problems.

Sexual teaching was used more frequently than sexual counseling and also had the most significant impact on SD. The success of this method could be attributed to nurses' relative familiarity with health teaching. Patient education is considered a necessary component in both the preparation of nurses (American Association of Colleges of Nursing, 2008) and standard nursing practice (American Nurses Association, 2015).

The relative lack of effect of sexual counseling is interesting considering education remains a component of any counseling intervention. Two of the three sexual counseling studies were exclusively telephone interventions which may have impacted the success of intervention. As mentioned by Christopherson et al. (2006), the “distance” of telephone intervention may allow for increased comfort in the discussion of sexual problems, but the same “distance” could also prevent the necessary development of a relationship and accommodation of different patient learning styles. Interventions that included face-to-face encounters were more likely to have beneficial effects on SD. It remains difficult to discern which delivery method is truly more effective since majority of studies used a combination.

Across the evidence, independent, nurse-delivered sexual teaching interventions appear to be most effective at improving female SD across multiple domains and diagnoses as reflected by significant improvement in post-intervention, sexual functioning outcomes. As outlined in the effectiveness section, the use of additional materials (i.e. lubricant or educational handouts) may have bolstered these nursing interventions and should be considered as helpful additions to nurse teaching.

No evidence exists for significant improvement in SD in samples of males and/or couples after nursing intervention, with the exception of using medical treatments for erectile dysfunction. However, it is important to note that all male participants in this review were also diagnosed with prostate cancer and of older age, limiting the generalizability of this finding.

Future research

Clearly more research is needed in this area of nursing practice. Nursing care of SD would benefit from future controlled trials where improvement in SD is a primary aim using validated SD interventions that are appropriate for nurses. It would also be beneficial for studies to compare method and delivery formats. Comparing a sexual teaching vs. sexual counseling approach or telephone vs. face-to-face appointments would assist in clarifying most useful aspects of the nursing care of sexual health. Future research should also explore the best setting for this type of intervention; in contrast to the telephone method that provides comfortable distance, the use of in-home visits might allow for a face-to-face encounter with comfort to be derived from the setting itself.

Expanding populations represented in study samples, especially with male participants, is also needed to understand how nurses can help those who may be younger or without cancer-related SD. Consistent use of standardized scales that focus on SD specifically, such as the FSFI (Rosen et al., 2000) or IIEF (Rosen et al., 1997), should be used in future studies as they may provide a more nuanced view of all the domains of sexual function affected by nurse interventions. Consumers of nursing research would also benefit from authors providing greater detail on interventions and demographic information of nurses delivering the intervention. Providing this would assist in translation of findings into practice. Of course, the creation of studies using PMH nurses and populations with mental health disorders would be essential in developing an evidence-base for this specialty.

Limitations

The greatest limitation of this review is the heterogeneity and paucity of evidence of nurse-delivered interventions in SD making it difficult to generate strong recommendations for practice. Similar issues have been encountered in other systematic and integrative reviews on nurse-delivered interventions in primary care for people with mental illness (Halcomb, McInnes, Patterson, & Moxham, 2018) and patient education for older adults (Strupeit, Buss, & Dassen, 2016), and may reflect the state of the science on the efficacy of independent nursing interventions. Also, because this review eliminated articles where nurse interventions were not explicit in their description of nurse involvement or nurse practice level, some outcomes may have been missed.

Implications for psychiatric-mental health nurses

Although this review lacked sufficient evidence to provide strong recommendations for PMH nurses, it has provided a road map and potential toolbox for nurses to begin to explore and define their practice in sexual health with psychiatric patients. First, a framework-guided intervention would assist PMH nurses, both seasoned and novice, in care planning for the patient with comorbid mental illness and SD. Frameworks assist nurses in identifying their role in SD, encouraging them to participate rather than remain ambivalent or confused on how to intervene. A study by Quinn, Happell, and Welch (2013) developed a 5-As framework (Avoidance, Awareness, Approval, Applying and Acknowledgement) that assisted mental health nurses in embedding sexual health into their daily practice. Frameworks such as these may promote PMH nurses' competency in SD and sexual health in general.

PMH nurses are likely already proficient at delivering some of the interventions outlined in this review, just perhaps not for the issue of SD. Patient education, counseling based upon patient goals, cognitive reframing exercises, and providing relaxation skills are all well within the daily practice of many nurses working in mental health settings. For instance, a mindfulness-based (a practice familiar to many PMH nurses) group focused on improving situational erectile dysfunction was shown to have positive effects on sexual satisfaction on a small sample of men (Bossio, Basson, Driscoll, Correia, & Brotto, 2018). Sexual anxiety can be a problem for patients with mental health disorders, especially those who have had limited sexual experiences or believe that their diagnosis makes them less desirable. Additionally, the SD itself can cause anxiety only further contributing to poor quality of life. Targeting the anxiety and provided education on ways to relax can help improve sexual experiences.

Reframing exercises would also be important in helping patients understand that their sexual problems can have physiologic or psychogenic origins and are not reflective of their worth or identity. It may also be necessary to provide sexual partners with a similar reframing exercise to alleviate misbeliefs on their part (“We don't have sex because they no longer desire me” etc.). Depending on practice settings, PMH nurses may not always be able to have multiple interactions patients; the findings from this review provide some solace in that short-term, specific sexual health teaching can be effective. The challenge is to encourage mental health nurses to actively address sexual problems and use these already known skills to target them.

Burden will also fall on psychiatric nurse educators and practicing nurses themselves to increase their own knowledge on sexual anatomy, physiology, response, and dysfunction. Initial education efforts could focus on medical treatments for SD. As seen in the study by Chambers and colleagues (2015), nurses can improve adherence to available treatments for SD, and beginning education in this familiar area may improve nursing confidence and involvement in sexual health care. Sexual teaching has the most evidence supporting its effect on improving outcomes, thus it is incumbent on PMH nurses to address their knowledge gaps in this area. Educational programs providing skill training on pelvic floor exercises, sensate focus, alternative expressions of intimacy, use of sexual aids, and current medical treatments will provide nurses with a holistic toolbox to draw from when caring for patients whose SD has a number of contributing factors.

PMH nurses should also develop a library of written materials that provide accurate information on SD that could be utilized with nurse education. Written materials containing education on sexual response/anatomy, how mental health can affect sexual functioning, and lifestyle changes that support sexual health would be an appropriate starting point. When nursing contact is limited, these handouts can provide an anchor for patients to self-study and seek out additional nursing care if desired. Again, it is unlikely that health systems and collegiate programs will suddenly provide these resources, and PMH nurses will have to be proactive in developing their own sexual health repertoire. Suggestions for building this foundation include reading textbooks written by experts in the field and joining professional human sexuality organizations such as AASECT (American Association of Sex Educators, Counselors, and Therapists) or IAS-M (International Association of Sexual Medicine) (Wincze & Weisberg, 2015). For a nursing perspective, the works of Dr. Jeffrey Albaugh PhD, APRN, CUCNS provide an excellent introduction to both male and female SD and can be found through simple web-searches. Future collaboration between psychiatric and urology professional nursing organizations could also be beneficial in developing and distributing nurse-centric education on this topic.

No nursing intervention can happen without nursing assessment. Initiating the conversation on SD and creating space for patients' to voice their concern is still important even when discussing interventions. A question as simple as “any sexual dysfunction?” may suffice or, for a more detailed assessment, the PMH nurse can administer validated tools for SD (such as those mentioned previously in this review). This step in the nursing process may be where PMH nurses are exceptionally skilled. PMH nurses frequently care for patients with histories of trauma, substance abuse, and suicidal behaviors; all of which are difficult topics to discuss. Yet, PMH nurses therapeutically use themselves to create a sense of safety and explore these sensitive issues. Talking about and assessing for SD, even in the absence of any symptoms, can be a powerful intervention where the nurse effectively “leaves the door open”. Doing this, the PMH nurse lets the patient know that they are a concerned professional who welcomes a discussion on SD and the

totality of sexual health.

Conclusion

There is limited evidence available for independent, nurse-delivered interventions for sexual dysfunction; still, this integrative review has produced some significant findings to drive nursing practice. Currently, best evidence exists for the efficacy of nurse-delivered sexual teaching interventions, using face-to-face encounters, for female sexual dysfunction. More research is needed to better understand what makes successful nursing interventions for sexual dysfunction, particularly in males. Psychiatric-mental health nurses can utilize some already familiar skills to address sexual dysfunction in the populations they serve but will need to be steadfast in developing additional knowledge and skills in sexual health.

Competing interests

The authors have no competing interests to declare.

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