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*Published in:*  
International Journal of Nursing Studies

*DOI:*  
[10.1016/j.ijnurstu.2019.103405](https://doi.org/10.1016/j.ijnurstu.2019.103405)

E-pub ahead of print: 31/12/2019

*Document Version*  
Publisher's PDF, also known as Version of record

[Link to publication on the UWS Academic Portal](#)

*Citation for published version (APA):*

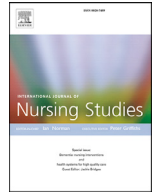
Papadopoulou, C., Sime, C., Rooney, K., & Kotronoulas, G. (2019). Sexual health care provision in cancer nursing care: a systematic review on the state of evidence and deriving international competencies chart for cancer nurses. *International Journal of Nursing Studies*, 100, [103405].  
<https://doi.org/10.1016/j.ijnurstu.2019.103405>

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# Sexual health care provision in cancer nursing care: A systematic review on the state of evidence and deriving international competencies chart for cancer nurses



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## ARTICLE INFO

### Article history:

Received 20 December 2018

Received in revised form 2 July 2019

Accepted 20 August 2019

### Keywords:

Nurse competencies

Sexuality

Fertility

Sexual health care

Cancer

Interventions

Systematic review

## ABSTRACT

**Background:** Sexual health care should be an integral part of holistic, person-centred care for patients with cancer. Nurses can have a pivotal role, but nurse-led care in this context has been historically challenging. **Objectives:** To update the state of scientific knowledge pertinent to nurses' competencies in delivering sexual health care to patients with cancer; better understand moderating factors; and evaluate interventions developed/tested to enhance nurses' competencies.

**Design:** Systematic literature review in line with published PRISMA Statement guidelines.

**Data sources:** Electronic bibliographic databases; journal content lists; reference lists of included studies; author/expert contact

**Review methods:** Nine electronic databases were searched (June 2008–October 2018) to identify studies employing diverse research methods. We applied pre-specified eligibility criteria to all retrieved records and integrated findings in a narrative synthesis.

**Results:** Of 2,614 returned articles, we included 31 unique studies. Five articles reported on two randomised controlled trials and three single-arm, before-and-after trials. Current evidence suggests that nurses' knowledge and skill in providing sexual health care still varies widely across different settings, phases and cancers. A plethora of intra-personal, inter-personal, societal and organisational factors may hinder nurse-led care in this context. Nurses' perceived professional confidence was repeatedly examined as influencing provision of care in this context; unfortunately, it was found lacking and complicated by unhelpful views and beliefs about SHC. Despite the magnitude of the problem, the few trials that tested, sexual health-targeted continuing professional development programmes for nurses, were of low-to-moderate methodological quality, while the associated high risk of methodological bias downgraded the evidence on the interventions' effectiveness.

**Conclusion:** Our systematic review replicates previous findings and highlights a continuing problem: nurse-led provision of sexual health care in cancer care remains sub-optimal and challenging, due mainly to nurses' assumptions and prejudices towards sexuality, lack of professional confidence in dealing with sensitive issues, and a complex health care system environment. To realistically deal with this problem, we propose a flexible, two-level chart to promote development of basic competence among all nurses caring for patients with cancer (entry-level), and facilitate subsequent transition to a more specialised, self-pursued role for a subset of nurses (champion-level). The chart itself can be relevant to an international audience, while it might be transferable to other long-term conditions. Accordingly, we propose additional rigorous research to test multi-component educational programmes, customised to meet entry-level and champion-level requirements to realise continuous nursing provision of sexual health care in cancer care.

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<https://doi.org/10.1016/j.ijnurstu.2019.103405>

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### What is already known about the topic?

- Sexual health care (SHC) should be an integral part of holistic, person-centred care for patients with cancer.
- Nurses can have a pivotal role, but nurse-led SHC in this context has been historically challenging.

### What this paper adds

- Nurse-led provision of SHC in cancer care remains sub-optimal and challenging, due mainly to nurses' assumptions and prejudices towards SHC, lack of professional confidence in dealing with sensitive issues, and an impeding health care system environment.
- We propose a flexible, two-level chart to promote development of basic SHC competence among all nurses caring for patients with cancer (entry-level), and facilitate subsequent transition to a more specialised, self-pursued role for a subset of nurses (champion-level).
- We propose additional rigorous research to test multi-component CPD programmes, customised to meet entry-level and champion-level requirements to realise continuous nursing provision of SHC in cancer care.

## 1. Introduction

Ill health can have a dramatic impact on how a person perceives themselves, their body, and their sexual and intimate relationship with others (WHO, 2006). Sexuality constitutes an integral part of being human; it encompasses not only sexual activity (physical aspect) but also one's personal identity (emotional/mental aspect) (Lavin and Hyde, 2006). As such, compromised sexuality can adversely affect one's psycho-emotional, physical and social well-being.

Physical or psychosocial changes associated with living with cancer can affect one's sexual/reproductive functioning, body image and perception of intimacy; the result can be an altered sexual self-concept (Kotronoulas et al., 2009). Men and women can be equally affected (Hilton et al., 2008). A combination of altered body image post-surgery and reduced sexual drive can threaten one's own masculinity or femininity (Flynn et al., 2011). Gender-specific cancers (e.g. testicular, prostate or ovarian cancer) can directly impact on sexuality and/or fertility (Katz, 2002; Olsson et al., 2013). Treatment side-effects can have a variable impact, ranging from radiotherapy-related nerve damage and subsequent sexual dysfunction to chemotherapy-related infertility (Olsson et al., 2013). Such effects can be as disturbing as the cancer itself (Southard and Keller, 2009). Research suggests that, regardless of age or gender, patients with cancer have sexual health needs that vary across the cancer trajectory (Reese and Haythornthwaite, 2016). For instance, during diagnosis and active treatment, sexual concerns may be experienced but rated lower on patients' priority list (Andersen, 2009; Olsson et al., 2013). But as patients start to adjust to life with and beyond cancer, sexual health deficits may become more prominent and become problematic (Reese and Haythornthwaite, 2016).

Today, sexual health, i.e. the "state of physical, emotional, mental and social well-being in relation to sexuality" (WHO, 2019) is considered a core component of nursing care (McLeod and Hamilton, 2013; Norman and Mitchell, 2016). Yet, for patients with cancer, provision of sexual health care (SHC) remains inconsistent, fragmented and sub-optimal (Flynn et al., 2011; Hordern and Street, 2007). At the same time, the evidence points out a key role for nursing and its unique perspective towards provision of holistic, person-centred care (Katz, 2005; McLeod and Hamilton, 2013). In our previous systematic review (Kotronoulas et al., 2009), we reported that most nurses working in cancer care

recognise SHC provision as being part of their role. However, the complexities of cancer-related SHC issues combined with the demands of a careful and sensitive approach may result in many nurses neglecting or avoiding this area altogether (Kotronoulas et al., 2009). For instance, nurses may find it difficult to initiate SHC-related conversations, thus leaving the decision to patients, who themselves may be apprehensive and uncertain about when and how to raise such sensitive issues (Olsson et al., 2012). Several intra-personal, inter-personal, cultural and organisational factors have been reported to affect nurses' knowledge, beliefs and practice behaviours, and ultimately provision of (optimal) SHC to patients with cancer (Kotronoulas et al., 2009).

Recognising nurses' pivotal role in the co-ordination of cancer care, previously, we advocated for improved nursing competence in the provision of SHC in this context (Kotronoulas et al., 2009). Since then, we have noted an international proliferation of research to evaluate and enhance nurses' SHC competencies, and better understand involved moderators of SHC practices. This dictated that an update was timely to examine the current state of evidence, evaluate the progress made over the past decade, and reveal gaps in cancer nursing education and practice that still need addressed.

## 2. Methods

This review is registered at the PROSPERO database (<https://www.crd.york.ac.uk/prospero/>, reg.no.: CRD42017065833).

### 2.1. Aim

This systematic review aimed to update the state of scientific knowledge pertinent to nurses' competencies in delivering SHC to patients with cancer. Our research questions (RQ) were:

1. What are nurses' perceived/evaluated competencies in providing SHC to patients with cancer?
2. What is the relative contribution of facilitators and barriers regulating provision of SHC (Kotronoulas et al., 2009) to: (a) nurses' perceived/evaluated SHC competencies, and (b) nurses' actual provision (self-reported/evaluated) of SHC to patients with cancer?
3. What continuing professional development (CPD) interventions have been developed/tested to enhance nurses' competencies in delivering SHC to patients with cancer?
4. What is the effectiveness of such CPD interventions on promoting nurse-initiated SHC for patients with cancer?

### 2.2. Information sources and searches

A systematic search strategy was developed comprising search terms grouped in the following areas: a) cancer, b) nursing, c) attitudes and d) sexuality. The search strategy included a combination of Boolean operators, truncation markers and MeSH headings, as well as key words, phrases and synonyms to increase inclusiveness and sensitivity of the searches. Searches were devised and run separately in the following databases: CINAHL (accessed via EBSCO), MEDLINE (accessed via PubMed Central), Cochrane Library, Health Source (Nursing Academic Edition, accessed via EBSCO), Proquest Nursing and Allied Health Source, PsycINFO (accessed via EBSCO), Science Direct & Taylor Francis (indexed in EBSCO), SocINDEX (accessed via EBSCO) and Web of Science. An example of the search strategy can be found in the Supplementary materials.

Electronic content lists of key journals (e.g. Oncology Nursing Forum, Cancer Nursing, and Supportive Care in Cancer) were also searched. An academic librarian was consulted to validate the search strategies. Google Scholar was searched for additional articles. Due to time restrictions no additional grey literature was

**Table 1**  
Eligibility criteria following PICOS statement.

Population	Research studies focussing on nurses providing care to patients with cancer. Acknowledging the international diversity of nursing roles and levels of professional practice in cancer care, we used the term “cancer nurse” to include any nurses working with patients with cancer irrespective of official title or role, or setting where nursing work takes place.
Intervention	Studies exploring (quantitatively and/or qualitatively) current competencies, barriers and facilitators in the provision of SHC (RQs 1 and 2) and/or experimental and non-experimental studies testing/reporting on the outcomes of interventions to improve nurses’ knowledge and behaviours toward the provision of SHC to patients with cancer (RQs 3 and 4).
Comparators/ Context	Studies comparing interventions to enhance nurses’ competencies (views/beliefs about SHC; SHC knowledge; frequency and timing of SHC delivery; self-efficacy in SHC delivery; comfort in SHC delivery) in providing SHC to patients with cancer (RQs 3 and 4).
Outcomes	Studies reporting on any intervention outcomes relevant to nurses’ SHC competencies (RQs 3 and 4).
Study designs	Quantitative, qualitative and mixed methods studies, regardless of the methodological underpinning of each study.

reviewed. The authors of the retrieved papers, as well as practitioners and academics with relevant expertise in the area, were contacted (e.g. through ResearchGate or LinkedIn forums) about any unpublished or preliminary research data that they would be willing to share for the purposes of this review. Reference lists of all included articles were examined, and further citation searches were carried out on key papers such as relevant systematic literature reviews. All searches were limited to international research published in the English language, dating from June 2008 (concluding date of our previous systematic review) to October 2018.

### 2.3. Eligibility criteria

We defined research-question-driven eligibility criteria using parameters of the Population, Intervention, Context, Outcome, Study design (PICOS) model (Centre for Reviews and Dissemination, 2009) (Table 1).

### 2.4. Data management

Titles and abstracts from the literature search were transferred to Endnote© reference management software (<http://endnote.com/>) and de-duplicated. Based on title and abstract, two reviewers (CP, GK) independently screened and retained potential eligible records. Retained records were obtained in full-text and independently screened. Level of agreement among the reviewers was measured using intraclass correlation coefficients (ICC), with an ICC  $\geq 0.75$  being considered excellent interrater agreement/consistency (Trevethan, 2017). Any disagreements were resolved by consensus with reference to the full-text paper, and a third reviewer (CS) was consulted.

### 2.5. Data collection

Data from included studies was extracted onto spreadsheets specifically created for this review. The data extraction spreadsheet (see Supplementary material) was drafted, piloted and refined with three studies of the final sample. All studies were categorised according to which RQ(s) they addressed.

### 2.6. Methodological quality and risk of bias

Methodological quality evaluation of all included studies was performed in parallel with data extraction. Two reviewers (CP, GK) independently assessed each study for methodological quality using appropriate critical appraisal checklists for:

- Observational studies (RQs 1 and 2): The standardised QualSyst evaluation tool (Kmet et al., 2004) was used. Quality was defined as the extent to which studies demonstrate internal validity according to (Kmet et al., 2004). QualSyst provides two separate scoring systems, one quantitative (14 items scored 0–2; maximum score of 28) and one qualitative (10 items scored 0–2; maximum score of 20). Summary quality scores (SQS) are reported as percentages of maximum total scores, ranging from 0 to 100%; higher SQS indicate better methodological quality. Despite the lack of formal guidelines, we considered those studies with  $SQS \geq 80\%$  as the most methodologically robust. Given the lack of agreement in the application and interpretation of quality criteria (Dixon-Woods et al., 2007), no studies were excluded based on methodological quality.
- Intervention studies: For consistency in reporting, we used the QualSyst for RQs 1–4 for all intervention studies. For RQs 3 and 4, randomised controlled trials were assessed for risk of bias, using the Cochrane Risk of Bias tool (Cochrane Library, 2019).

### 2.7. Data synthesis

Our synthesis of evidence produced a narrative for each RQ, which linked findings to the volume and methodological quality of the underpinning research. For RQs 1–3, quantitative study data are presented in a combined narrative synthesis, grouped by RQ (and by outcome). Qualitative study data were synthesised thematically using QSR NVivo software following a three-step approach: free line-by-line coding, construction of ‘descriptive’ themes, and mapping against the RQs. For RQ 4, the possibility of statistical meta-analysis of intervention outcomes was explored; however, due to the small number and heterogeneity of retrieved trials, we were only able to perform descriptive statistical analysis with no pooling of data. Qualitative and quantitative syntheses were combined to produce an overall narrative synthesis.

## 3. Results

### 3.1. Study characteristics

Our searches returned 2614 articles, which were screened for eligibility. Ultimately, 31 articles reporting on 31 unique studies were retained: 21 quantitative, 7 qualitative and 3 mixed-methods studies (see Fig. 1 and Table 2). Five articles reported on two randomised controlled trials (RCT) and three uncontrolled, before-and-after, intervention studies. Sample sizes varied between 10 and 576 participants for a grand total of 3649 participants. Eighteen studies were conducted in western cultural contexts, with eleven in middle-eastern or eastern countries.

### 3.2. Quality appraisal and risk of bias

Overall, the quality of the studies was judged as low-to-moderate with high interrater agreement scores (ICCquant = 0.83; ICCqual = 0.91). Summary quality scores for individual studies ranged from 39 to 100 (qualitative: 45–90, quantitative: 39–100, intervention studies: 39–86) (Table 3). The two RCTs scored at 75 (Kim and Shin, 2014) and 86 (Jung and Kim, 2016). Risk of bias in

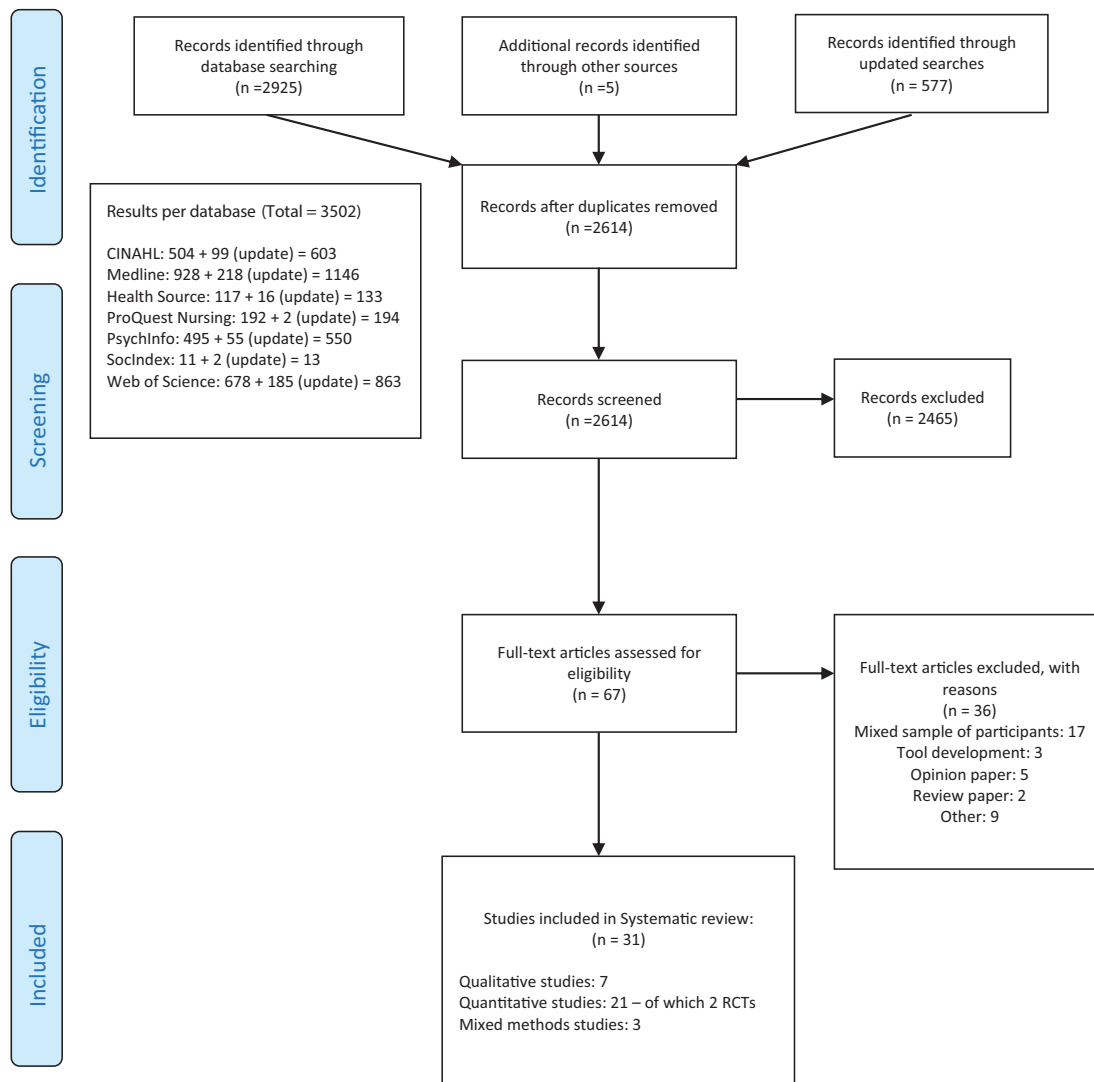


Fig. 1. PRISMA flow diagram (Moher et al., 2015).

the two RCTs (Jung and Kim, 2016; Kim and Shin, 2014) was found to be either high (performance bias, self-selection bias, diffusion bias) or unclear. The quality of evidence was only low-to-moderate (Supplementary Table 1).

### 3.3. Synthesis of results

An overview of the topics addressed in the studies included in the review are presented in Supplementary Table 2.

#### 3.3.1. Q1 Nurses' competencies for sexual health care provision

Nursing competencies were defined as the level of knowledge and skills required to deliver SHC to patients with cancer, and were guided by nurses' perceptions, assumptions, and practices.

**Knowledge.** Eight quantitative studies explored nurses' perceptions of SHC knowledge, yielding mixed self-reports (Afiyanti, 2017; Depke and Onitilo, 2015; Fuchs et al., 2016; Krouwel et al., 2015; Krouwel et al., 2016; Moore et al., 2013; Oskay et al., 2014; Zeng et al., 2012). In three studies, knowledge was tested; results indicated high rates of insufficient understanding of the area (Huang et al., 2013; Mansour and Mohamed, 2015; Sonay Kurt et al., 2013). In-depth exploration revealed that provision of information

on services for fertility preservation (King et al., 2008) or fertility preservation options and the timing of when these should be offered (Murray et al., 2016; Wright et al., 2018) was problematic due to a knowledge gap. According to Olsson et al. (2012), this lack of knowledge and the resultant uncertainty often led to avoiding the topic as a whole. "Not having all the answers" made nurses feel "unprepared" (Williams et al., 2017). Previous training in SHC provision was considered inadequate or absent (Algier and Kav, 2008; Depke and Onitilo, 2015; Fuchs et al., 2016; Krouwel et al., 2015; Mansour and Mohamed, 2015; Moore et al., 2013; Oskay et al., 2014; Smith and Baron, 2015; Ussher et al., 2016). The need for and interest in additional training (both in approaching sensitive issues and the field knowledge) was frequently highlighted (Depke and Onitilo, 2015; Fuchs et al., 2016; Huang et al., 2013; Jung and Kim, 2016; Keim-Malpass et al., 2017; Krouwel et al., 2015; Ussher et al., 2016). Most important topics for further training included the effects of treatment and cancer on sexual life, and how to address sexual needs during treatment (Huang et al., 2013; Oskay et al., 2014).

**Skills.** Communication skills to help address sensitive topics were most commonly reported as necessary in providing SHC. The level of skill was examined indirectly by identifying nurses' perceptions



**Table 2**  
Overview of included studies.

Study characteristics	Categories	Number of studies
Publication year period	2008–2012	7
	2013–2018	24
Cultural context	Western <sup>a</sup>	18
	Middle-Eastern <sup>b</sup>	4
	Eastern <sup>c</sup>	7
	Other <sup>d</sup>	2
Sample size	<50	12
	50–150	12
	151–250	3
	>251	4
Research design	Observational	26
	Intervention (including RCTs)	5
	Quantitative	21
	Qualitative	7
	Mixed method	3
Context of care	Acute	23
	Varied <sup>e</sup>	8
Nurses' years of experience in cancer care (>50% of the sample)	≤4 years	1
	>5 years	6
	Not reported	24
Education level (≥50% of the sample reporting top education level)	Diploma	4
	Bachelor degree	4
	Master's or equivalent	7
	Not reported	16

<sup>a</sup> Western countries: USA, UK, Ireland, Australia, the Netherlands, Sweden, Belgium.

<sup>b</sup> Middle-Eastern countries: Egypt, Turkey.

<sup>c</sup> Eastern countries: Indonesia, China, Korea.

<sup>d</sup> Other: Brazil.

<sup>e</sup> Combination of acute, palliative, community.

of professional confidence or preparedness to manage or discuss patients' SHC concerns, implying that better communication skills result in greater confidence. Twelve quantitative studies reported levels of professional confidence that ranged from 35% to 93% of the study sample. For some nurses, professional confidence also depended on the setting (e.g. having a private space (Williams et al., 2017)), or the specific topic (e.g. providing information on how patients could meet their partners' needs was seen as most uncomfortable (Oskay et al., 2014)) that conversations dealt with. Four qualitative studies (Ferreira et al., 2015; Jung and Kim, 2016; King et al., 2008; Williams et al., 2017) further explored communication skills. Verbal and non-verbal skills targeted to increase comfort levels helped facilitate conversations and build or strengthen the therapeutic relationship (Williams et al., 2017). Initiating conversations was a key challenge for nurses. Using

prompts (such as leaflets) or "normalising" the conversation by incorporating the topic of sexuality in all aspects of care were seen as helpful practices to reduce the relevant awkwardness.

### Perceptions, assumptions and practices

*a. Nurses' perceptions on the importance of SHC provision.* The majority of nurses recognise SHC issues as legitimate concerns in patients with cancer (Krouwel et al., 2015; Oskay et al., 2014; Ussher et al., 2016). In six quantitative studies, nurses agreed that discussing sexuality and fertility issues with patients with cancer is important (Afiyanti, 2017; Keim-Malpass et al., 2017; Krouwel et al., 2015; Oskay et al., 2014; Smith and Baron, 2015; Zeng et al., 2011). However, only one study explicitly advocated for SHC to be part of routine cancer care (Depke and Onitilo, 2015). Other studies suggested a more pressing need for SHC to be provided to patients with specific types of cancer (Krouwel et al., 2015; Sonay Kurt et al., 2013). Moreover, qualitative evidence revealed that SHC provision seems to be a matter of perceived priority; "sexuality is not a priority when the key is to maintain life" was a common view repeated in qualitative studies (Ferreira et al., 2015; King et al., 2008; Olsson et al., 2012; Wright et al., 2018), where the main focus remained either on the cancer or its treatment (Ferreira et al., 2015; Jung and Kim, 2016).

*b. Nurses' perceptions on SHC provision as part of nursing role.* Studies that looked at how nurse-patient conversations are initiated, indicated that patients still expect their nurse to bring up the issue (Afiyanti, 2017; Huang et al., 2013; Julien et al., 2010; Zeng et al., 2011; Zeng et al., 2012) and that it is appropriate for nurses to do so (Huang et al., 2013). Overall, nurses continue to view SHC as a component of their role. Eight studies provided cumulative evidence to support SHC as a nursing responsibility; however, others revealed nurses' expectation for the physician, the social worker, the psychologist or the patient to take responsibility to deal with SHC issues (Benoot et al., 2018; Depke and Onitilo, 2015; Keim-Malpass et al., 2017; King et al., 2008; Krouwel et al., 2015; Krouwel et al., 2016). In a few studies, a type of shared responsibility was suggested, whereby nurses stated that the oncologist or the specialist nurse should initiate the conversation before they go on and further discuss the topic (Murray et al., 2016; Olsson et al., 2012).

*c. Nurses' SHC-related assumptions and biases.* Nurses' most common assumption was that sexuality is a very private topic to discuss (Afiyanti, 2017; Huang et al., 2013; Zeng et al., 2011; Zeng et al., 2012), and hence should be discussed only if initiated by the patient or the family (Afiyanti, 2017; Huang et al., 2013; King et al., 2008; Olsson et al., 2012; Williams et al., 2017; Zeng et al., 2011). In other studies, nurses presumed that patients with

**Table 3**  
Effect sizes, statistical significance and aggregated quality of evidence associated to intervention outcomes tested across five intervention studies.

Outcome	Randomised controlled trials		SQS <sup>a</sup>	Before-and-after single-arm trials			SQS <sup>a</sup>
	Kim and Shin (2014) p-value; d <sub>Cohen's</sub>	Jung and Kim (2016) p-value; d <sub>Cohen's</sub>		Afiyanti et al. (2016) p-value; d <sub>RM</sub>	Vadaparampil et al. (2016) p-value; d <sub>RM</sub>	Smith (2015) p-value; d <sub>RM</sub>	
Knowledge (evaluated)	0.04; 0.77 <sup>int+</sup>	–	75	<0.001; 1.83	<0.001; 1.50	–	66
Knowledge (self-reported)	–	–	NA	–	<0.001; 2.10	NA ↑ (60% v. 38%)	58
Attitudes/beliefs	0.21; 0.55 <sup>int+</sup>	0.07; 0.38 <sup>int+</sup>	81	0.008; 0.07	–	–	55
Self-efficacy/professional confidence	–	–	–	0.02; 0.12	<0.001; 2.10	NA ↑ (89% c. 60%)	55
Practices	0.60; 0.15 <sup>int+</sup>	<0.001; 2.08 <sup>int+</sup>	81	0.06; 0.06	NA	NA ↑ (67% v. 37%)	55
Practices-sexual function	–	<0.001; 3.74 <sup>int+</sup>	86	–	–	–	NA
Practices-psychological factors	–	0.001; 0.99 <sup>int+</sup>	86	–	–	–	NA
Practices-Social problems	–	0.01; 0.70 <sup>int+</sup>	86	–	–	–	NA
Practices-Reproductive care	–	0.007; 0.90 <sup>int+</sup>	86	–	–	–	NA

<sup>a</sup> During data synthesis, research evidence generated by at least two studies with a median SQS > 95% was considered as high quality; a median SQS = 90–95% as very good quality; a median SQS = 80–89% as good quality; a median SQS = 65–79% as moderate quality; and a median SQS = 40–64% indicated low quality evidence.

cancer are simply too ill to be interested in sexuality (Afiyanti, 2017; Benoot et al., 2018; Huang et al., 2013; Moore et al., 2013; Zeng et al., 2011; Zeng et al., 2012). Patient factors such as age, appearance, health and family status, as well as unsupported judgements about whether it is the right time for the patient to engage in such discussions were also highlighted (Benoot et al., 2018; Williams et al., 2017). Where the patient was on the cancer trajectory (i.e. before/ during/ after treatment) was perceived as a signal for changing level of priority to discuss SHC (Olsson et al., 2012). In other cases, merely the possibility of miscommunication, such as patients misinterpreting questions about sexuality (Moore et al., 2013), or patients becoming uncomfortable (Mansour and Mohamed, 2015) or irritated (Mansour and Mohamed, 2015; Sonay Kurt et al., 2013), could inhibit nurses out of fear of putting their relationship with the patient at risk (Mansour and Mohamed, 2015). Elsewhere, information regarding fertility preservation options were not offered due to nurses assuming that patients could not afford the procedure's increased cost (Sonay Kurt et al., 2013).

*d. Nurses' SHC-related practices.* Studies revealed a diversity of practices related to the provision of SHC. Where SHC was seen as part of nurses' role, the nurse made sure that patients were fully informed and supported in their decisions (Fuchs et al., 2016; Krouwel et al., 2015; Murray et al., 2016). The usual starting point of the conversation was around the impact of cancer and its treatment, and an indirect discussion of relationships and emotions (Olsson et al., 2012). Discussions were predominantly general information-giving rather than evaluation-focussed. Their content ranged from birth control options (Algier and Kav, 2008) to risk of early menopause (Algier and Kav, 2008; Zeng et al., 2012) and the effects of treatment on sexual function and fertility (Algier and Kav, 2008; Fuchs et al., 2016; Keim-Malpass et al., 2017; Krouwel et al., 2015; Krouwel et al., 2016; Oskay et al., 2014; Ussher et al., 2016; Zeng et al., 2012), and changes in body image (Algier and Kav, 2008; Krouwel et al., 2015; Zeng et al., 2012) to fertility preservation options (Keim-Malpass et al., 2017; Oskay et al., 2014). Williams et al., (2017) reported that nurses adapted and personalised their approach based on their patients' need, usually offering psycho-emotional support through active listening. The use of specific educational materials with patients was reported in five studies (Fuchs et al., 2016; Gleeson and Hazell, 2017; Keim-Malpass et al., 2017; Krouwel et al., 2016; Ussher et al., 2016). Some nurses initiated discussions (Benoot et al., 2018; Depke and Onitilo, 2015; Smith and Baron, 2015), and made time to address SHC issues (Afiyanti, 2017; Julien et al., 2010; Zeng et al., 2011; Zeng et al., 2012) or at least made their availability known to the patient (Depke and Onitilo, 2015; Moore et al., 2013); others even referred patients to other members of the team. However, actual referrals made to the wider multidisciplinary team were only mentioned in one study (Zeng et al., 2012). In contrast, other nurses were too busy to discuss sexuality at all (Mansour and Mohamed, 2015; Sonay Kurt et al., 2013; Zeng et al., 2012) or left the decision to the patients (unknowingly) (Krouwel et al., 2015; Oskay et al., 2014; Ussher et al., 2016).

### 3.3.2. RQ2 directly expressed/ tested facilitators and barriers of nursing provision of SHC

An array of intra-personal or inter-personal factors (entwined with nurses' perceptions and assumptions) and wider cultural or organisational factors (out with nurses' judgement) can promote or hinder provision of SHC. Such factors are organised and presented as part of the five following themes.

*Patient-related.* Nurses indicated a barrier in whether patients identify or fail to identify SHC issues (Algier and Kav, 2008; Gleeson and Hazell, 2017; Krouwel et al., 2016; Moore et al., 2013; Oskay et al., 2014; Zeng et al., 2012). Some perceptions, such as

whether SHC is a priority for patients at a particular stage of their cancer experience, acted as a barrier in themselves (Mansour and Mohamed, 2015; Ussher et al., 2016; Zeng et al., 2012). Such perception were often associated with patients' (older) age (Algier and Kav, 2008; Krouwel et al., 2015; Krouwel et al., 2016; Moore et al., 2013; Oskay et al., 2014; Ussher et al., 2016), prognosis or general health status (Keim-Malpass et al., 2017; Krouwel et al., 2015; Krouwel et al., 2016; Moore et al., 2013; Ussher et al., 2016). Younger age remains a promoting factor to address sexuality (Algier and Kav, 2008; Krouwel et al., 2015; Krouwel et al., 2016; Moore et al., 2013; Ussher et al., 2016; Vieira et al., 2013), as well as female gender (Ferreira et al., 2015; Jung and Kim, 2016; Williams et al., 2017). Matching nurses and patients in terms of their demographics and backgrounds (i.e. culture, language and sexual history) were also identified as promoting such discussions (Williams et al., 2017). However, no convincing evidence currently exists about matching nurses and patients on gender (Krouwel et al., 2015; Moore et al., 2013; Ussher et al., 2016). Patients' likely discomfort or embarrassment was another common hindrance (Algier and Kav, 2008; Benoot et al., 2018; Depke and Onitilo, 2015; Keim-Malpass et al., 2017; Mansour and Mohamed, 2015; Moore et al., 2013; Oskay et al., 2014). The patient's relationship status (Moore et al., 2013; Ussher et al., 2016), refusal to discuss sexuality related needs, financial situation (Keim-Malpass et al., 2017), or presence of a third party during discussion (Krouwel et al., 2015) were less frequently reported factors.

*Nurse-related.* The most commonly identified barriers were SHC not being seen as part of the nursing role, not a priority, too private a topic, or interfering with diagnosis or treatment (Algier and Kav, 2008; Benoot et al., 2018; Depke and Onitilo, 2015; Gleeson and Hazell, 2017; Julien et al., 2010; Krouwel et al., 2015; Mansour and Mohamed, 2015; Moore et al., 2013; Oskay et al., 2014; Zeng et al., 2011; Zeng et al., 2012). Other attributes were also investigated, including nurses' greater work experience in cancer care (Huang et al., 2013; Julien et al., 2010; Krouwel et al., 2015; Krouwel et al., 2016; Oskay et al., 2014; Zeng et al., 2011; Zeng et al., 2012), age (older than 40) (Huang et al., 2013; Julien et al., 2010; Krouwel et al., 2015; Mansour and Mohamed, 2015; Zeng et al., 2011) and marital status (being married) (Zeng et al., 2011; Zeng et al., 2012), all having a positive relationship with engaging with SHC. Nurses' low levels of professional confidence (Julien et al., 2010; Smith and Baron, 2015), lack of comfort in SHC (Algier and Kav, 2008; Mansour and Mohamed, 2015; Zeng et al., 2012) and lack of rapport in the therapeutic relationship with the patient were also identified as barriers, often relating to the nurse's degree of specialisation (Julien et al., 2010; Krouwel et al., 2015; Krouwel et al., 2016; Mansour and Mohamed, 2015; Moore et al., 2013; Oskay et al., 2014; Zeng et al., 2011) and level of communication skills (Mansour and Mohamed, 2015; Zeng et al., 2012). The nurse's working experience, personal beliefs and self-awareness were also mentioned facilitators (Williams et al., 2017) together with having a sense of professional responsibility.

*Social/cultural.* For certain cultures sexuality remains a taboo subject for patients and nurses alike (Heinemann et al., 2016). Patients' cultural background, including religious beliefs, was addressed in both quantitative (Gleeson and Hazell, 2017; Krouwel et al., 2015; Moore et al., 2013) and qualitative studies (Ferreira et al., 2015; Williams et al., 2017). Qualitative evidence sheds light on the societal factors on addressing sexual concerns and engaging in conversations related to those. A factor mentioned was social acceptability that determines whether in a culture there is space to address this issue or if it is seen as a taboo topic (Williams et al., 2017). Elsewhere, the social interpretations of sexuality come down to bodily pleasure (Ferreira et al., 2015).

This can increase feelings of guilt from the patients' perspective, when their focus should allegedly be only on dealing with the cancer and its treatment, particularly where cancer remains a stigmatised illness. Certain cultural norms (e.g. among Muslims or indigenous populations) may create additional challenges for a nurse to broach the subject (Williams et al., 2017).

*Environmental/organisational.* The work environment and organisational structure of services were identified as hindering factors to the provision of SHC. The most commonly reported barrier was the lack of time and staff shortages (Algier and Kav, 2008; Depke and Onitilo, 2015; Huang et al., 2013; Keim-Malpass et al., 2017; Mansour and Mohamed, 2015; Moore et al., 2013; Smith and Baron, 2015; Wright et al., 2018; Zeng et al., 2012). This lack of time often resulted in interactions being fast and automated because of their procedure-focussed nature (Ferreira et al., 2015; King et al., 2008; Olsson et al., 2012; Williams et al., 2017). It is striking that in six studies one of the issues mentioned was the lack of appropriate services and resources to make patient referrals (Keim-Malpass et al., 2017; Moore et al., 2013; Oskay et al., 2014; Smith and Baron, 2015; Usher et al., 2016; Zeng et al., 2012). The space layout of the ward not allowing private discussions with patients was often reported (Algier and Kav, 2008; Depke and Onitilo, 2015; Ferreira et al., 2015; Gleeson and Hazell, 2017; Jung and Kim, 2016; Mansour and Mohamed, 2015; Moore et al., 2013; Olsson et al., 2012; Zeng et al., 2012). Six studies identified that the provision of SHC was not practiced routinely (Algier and Kav, 2008; Gleeson and Hazell, 2017; Krouwel et al., 2015; Mansour and Mohamed, 2015; Oskay et al., 2014; Zeng et al., 2012) or even endorsed by managers (Krouwel et al., 2015; Moore et al., 2013). It is thus not surprising that nurses who worked in specialised cancer centres had more opportunities to discuss SHC with their patients. Additional issues raised in qualitative studies were team dynamics impacting on care; having established teams as opposed to rotating members of staff creating team bonding difficulties (Ferreira et al., 2015; Williams et al., 2017); the need for additional support and lack of referral strategies and documentation of these; and the lack of mentors (Williams et al., 2017). Short hospital stays were another influential factor (Moore et al., 2013; Zeng et al., 2012). Such issues seemed to affect continuity of care (i.e. short hospitalisations), and consequently the ability to build a therapeutic relationship over the course of only a few meetings (Olsson et al., 2012; Williams et al., 2017) was also stressed.

*SHC CPD and deficits.* Across studies, perceived lack of knowledge on SHC issues was expressed as a major inhibitory factor for nurses in their decision to discuss SHC with patients with cancer (Algier and Kav, 2008; Depke and Onitilo, 2015; Gleeson and Hazell, 2017; Julien et al., 2010; Keim-Malpass et al., 2017; Krouwel et al., 2015; Krouwel et al., 2016; Mansour and Mohamed, 2015; Moore et al., 2013; Oskay et al., 2014; Smith and Baron, 2015; Wright et al., 2018). Wright et al., (2018) explained the knowledge deficit as a lack of ownership from nurses, who adopted normalisation coping to address their perceived lack of knowledge. However, which deficient areas of SHC knowledge might be particularly implicated remains unknown.

### 3.3.3. RQ3 interventions to develop competencies

*Intervention characteristics.* Three CPD programmes provided generic cancer-related SHC training (Afiyanti et al., 2016; Jung and Kim, 2016; Kim and Shin, 2014). Two CPD programmes were specifically developed for nurses caring for patients with breast cancer (Smith and Baron, 2015) or adolescent and young patients with cancer (Vadaparampil et al., 2016). One CPD programme specifically targeted nurses' competencies in providing support

with fertility and reproductive health issues (Vadaparampil et al., 2016).

The CPD programmes employed group (Afiyanti et al., 2016; Kim and Shin, 2014; Smith and Baron, 2015) or individual-based training (Jung and Kim, 2016; Vadaparampil et al., 2016). The programmes used a combination of materials and didactic methods, including slide presentation/lectures, discussion, case-studies/role-playing (Afiyanti et al., 2016; Kim and Shin, 2014; Smith and Baron, 2015; Vadaparampil et al., 2016), Q&A sessions (Afiyanti et al., 2016; Kim and Shin, 2014; Vadaparampil et al., 2016), sharing of experiences, story-telling (Afiyanti et al., 2016), quizzes, external links/resources (Kim and Shin, 2014), and in-practice application (Afiyanti et al., 2016; Jung and Kim, 2016).

Two CPD programmes were web-based (Kim and Shin, 2014; Vadaparampil et al., 2016). The rest of the programmes involved face-to-face class sessions (Smith and Baron, 2015), in-clinic sessions (Jung and Kim, 2016), or a combination of class and in-clinic sessions (Afiyanti et al., 2016). Delivery schedules involved one-off (Smith and Baron, 2015), daily (Afiyanti et al., 2016; Jung and Kim, 2016) or weekly sessions (Kim and Shin, 2014; Vadaparampil et al., 2016). Total duration of training varied widely, ranging from one hour (Smith and Baron, 2015) to 8–12 (Vadaparampil et al., 2016), 8–16 (Kim and Shin, 2014) or 35 h (Afiyanti et al., 2016).

CPD programme content included sessions on knowledge building and sharing (Kim and Shin, 2014; Smith and Baron, 2015; Vadaparampil et al., 2016), orientation to common SHC issues and solutions (Afiyanti et al., 2016; Kim and Shin, 2014; Smith and Baron, 2015; Vadaparampil et al., 2016), assessment and intervention implementation (Jung and Kim, 2016; Kim and Shin, 2014), interviewing skills (Afiyanti et al., 2016; Smith and Baron, 2015; Vadaparampil et al., 2016), communication skills (Afiyanti et al., 2016; Smith and Baron, 2015) and avoidance of assumptions, simulation based on actual patient scenarios (Smith and Baron, 2015), and documentation (Afiyanti et al., 2016; Jung and Kim, 2016). Overall, training in communication skills and in-clinic application of training was found to be lacking.

*Target outcomes.* All studies targeted nurses' practices. Four studies targeted nurses' knowledge (Afiyanti et al., 2016; Kim and Shin, 2014; Smith and Baron, 2015; Vadaparampil et al., 2016). Three studies targeted nurses' attitudes/beliefs (Afiyanti et al., 2016; Jung and Kim, 2016; Kim and Shin, 2014) or self-efficacy/professional confidence (Afiyanti et al., 2016; Smith and Baron, 2015; Vadaparampil et al., 2016). None of the RCT studies assessed the intervention's impact on nurse self-efficacy/professional confidence.

*Intervention feasibility, acceptability, fidelity.* Three studies reported on intervention feasibility and/or acceptability (Jung and Kim, 2016; Kim and Shin, 2014; Smith and Baron, 2015). Two studies reported a 100% attendee retention rate between pre- and post-intervention (Jung and Kim, 2016; Kim and Shin, 2014). However, Kim and Shin (2014) reported low participation rates among their target nurse population, perhaps due to time constraints or lack of incentives. In terms of acceptability, programme attendees returned positive feedback overall, indicating good levels of satisfaction (Jung and Kim, 2016; Kim and Shin, 2014; Smith and Baron, 2015). Jung and Kim (2016) reported that attendees intended to re-use their SHC nursing record on SHC attitudes and practices. However, some attendees did ask for longer sessions to allow for more time to practice new skills (Smith and Baron, 2015), while others commented on the increased difficulty of some training scenarios (Kim and Shin, 2014). None of the studies evaluated intervention fidelity, i.e. whether the programme was delivered as intended.



### 3.3.4. RQ4 intervention effectiveness

Consistently, nurses' knowledge increased post-intervention (Afiyanti et al., 2016; Kim and Shin, 2014; Smith and Baron, 2015; Vadaparampil et al., 2016). This was true for both evaluated (Afiyanti et al., 2016; Kim and Shin, 2014; Vadaparampil et al., 2016) and self-reported knowledge (Afiyanti et al., 2016; Kim and Shin, 2014; Smith and Baron, 2015; Vadaparampil et al., 2016). In the RCT by Kim and Shin (2014), the change in knowledge scores for the intervention group was significantly greater than for the control group, suggesting greater perceived knowledge for the intervention group at post-intervention (Cohen's  $d=0.77$ ) (Table 3).

In terms of SHC attitudes/beliefs, both RCTs yielded small-to-medium intervention effects, favouring the intervention group, but no statistical significance was reached (Jung and Kim, 2016; Kim and Shin, 2014). Afiyanti et al., (2016) showed a statistically significant improvement at post-intervention, but mean scores of SHC attitudes/beliefs were similar before and after the intervention ( $49.63 \pm 4.73$  v.  $49.28 \pm 5.02$ ;  $p=0.008$ ), perhaps indicating minimal actual importance. Self-efficacy/professional confidence scores also improved post-intervention, but evidence was mixed in terms of the clinical importance of this change, and also unclear as to whether improvements were attributable to the intervention itself owing to the uncontrolled nature of the studies.

Findings on SHC provision practices were also conflicting. Kim and Shin (2014) found no significant differences between intervention and control group, with only a small effect size in favour of the intervention. Conversely, in Jung and Kim (2016), a very large effect size in favour of the intervention was found. The observational studies either reported no significant post-intervention gains (Afiyanti et al., 2016) or a 30% increase in self-reported in-clinic practices (Smith and Baron, 2015). Vadaparampil et al., (2016) reported a range of positive post-intervention actions to promote change in nurses' competencies in reproductive healthcare, but no pre-to-post intervention comparisons were made.

Effectiveness was mainly measured up to 12 weeks post-intervention, i.e. at either 3–6 weeks (Afiyanti et al., 2016; Jung and Kim, 2016; Vadaparampil et al., 2016) or 12 weeks post-intervention (Kim and Shin, 2014; Smith and Baron, 2015). Only one study also carried out a medium-term effectiveness assessment at 24 weeks post-intervention (Vadaparampil et al., 2016).

## 4. Discussion

Our systematic review offers a synthesis of data from a large population sample originating from a variety of cultural contexts, shedding more light on SHC competencies and factors affecting SHC provision on an international level. SHC-related concerns remain under-addressed for patients with cancer due to a plethora of intra-personal, inter-personal, societal and organisational factors (Reese et al., 2017). Current evidence suggests that nurses' knowledge on SHC still varies widely across different settings, phases (acute, survivorship or palliative) and cancers, and the same applies for relevant skills. Studies in our sample repeatedly examined nurses' perceived professional confidence as being crucial in realising SHC in this context. Professional confidence was found lacking and complicated by unhelpful views and beliefs towards SHC. Despite the magnitude of the problem, experimental studies that tested the effectiveness of CPD programmes developed to enhance nurses' competencies in providing SHC to patients with cancer were surprisingly scarce and overall of low-to-moderate methodological quality (with high risk of bias), thus downgrading the associated evidence. Similarly, limited work was conducted with multi-disciplinary teams, where existing evidence on the effects of educational interventions suggests improved outcomes in terms of knowledge and practices (Jonsdottir et al., 2016). Regardless of educational approach, these interventions' primary outcomes

were nurses' knowledge and clinical practices, whereas effects on nurses' self-efficacy and confidence were tested inconsistently or not at all.

Perhaps, sexuality is not a priority for all patients or at certain time-points in their treatment when other more pressing needs require addressing (Fitch et al., 2013; Reese et al., 2017; Williams et al., 2017), but SHC should still be available as part of a holistic approach to care. This is particularly important for sexual dysfunction that can directly lead to compromised fertility and reproductive issues, especially as the numbers of people of reproductive age who are diagnosed with cancer steadily increases (Coccia et al., 2014). In this review, almost a third of the studies looked into fertility conversations between nurses and patients. Arguably, these discussions can have important implications for treatment initiation. Yet, there is consensus that in order to provide person-centred care, patients need to be involved in such conversations, and health professionals need to be apt to engage in them (Fuchs et al., 2016; Murray et al., 2016; Vadaparampil et al., 2016). Gender-matched or age-matched patient-nurse interactions have been previously proposed as promoting SHC, but no solid evidence exists (Krouwel et al., 2015; Moore et al., 2013; Ussher et al., 2016). This must be expanded to appropriate discussions that acknowledge the moderating effect of patients'/nurses' sexual orientation and that of unique contextual (cultural and religious) factors on how sexuality and/or fertility concerns are (expected to be) addressed.

One mediating factor could be nurses' level of communication skills and self-confidence in addressing challenging/complex issues that go beyond physical symptoms. A recent review reporting patient-provider communication factors about sexual concerns in cancer indicated a lower patient prevalence of discussing the effects of treatment on a person's sexuality compared to what professionals reported (50% vs 88%) (Reese et al., 2017). Similarly, a discrepancy was found in prevalence of assessing sexual concerns (10% reported by patients vs 21% reported by professionals). This gap in the perception of what is discussed around sexuality is alarming considering the need for person-centred holistic care.

Nurses' professional confidence plays a major role in whether SHC is realised or not, and if so, how often, under what circumstances, and for which patients. The context of care provision, e.g. acute care versus follow up and associated volume of SHC services on offer, might be another moderating variable of expressed professional confidence. Here, only six of the reviewed studies defined the acute context where nurses worked in (e.g. in-patient, outpatient or day care areas), but no specification was made of the follow-up services involved. In any case, suggesting that all nurses must provide SHC seems unfounded. However, all nurses must possess a certain level of professional confidence in actively "investigating" overt or covert expressions of SHC-related concern in the first instance. The use of "prompts", such as information leaflets, which are provided early on to all patients with cancer (and existing partners) could act as an ice-breaker and as confirmation that SHC is as valid as any other type of care. This can then be followed-up when patients enter the survivorship or palliative care phase where priorities may shift.

SHC provision was adopted in departmental policy in only two of the reviewed studies (Krouwel et al., 2015; Ussher et al., 2016). At an organisational level, acknowledging the fact that policy does not always transpire in practice, creating specific roles such as nurses acting as "champions" could address some of the barriers recognised, particularly related to the environment (staff shortages and time restrictions). With protected time to perform SHC assessment/management duties, the SHC champions could offer more in-depth information and support once concerns are identified by nursing staff and also encourage nursing staff to build these skills. For other members of the nursing team acknowledging the presence of a 'champion SHC nurse' could provide a certain sense

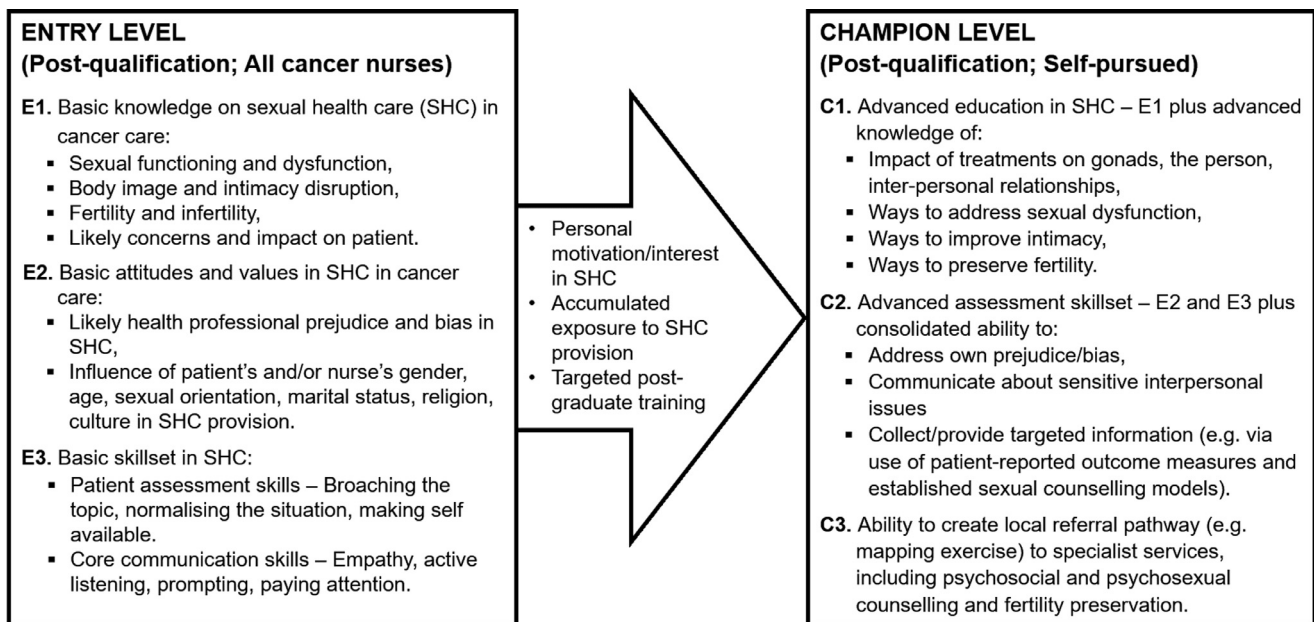


Fig. 2. International sexual health care (SHC) competency chart for nurses working in cancer care.

of reassurance about what the 'next step' could be once a SHC need is recognised.

Nurse education on SHC should go beyond cancer care as the topics of sexuality/fertility are directly related not just to the cancer context but also to the wider societal context. Current evidence suggests that nurses' knowledge is an outcome that is highly amenable to CPD intervention effects, but actual change in clinical practice is limited, which is not surprising. One reason might be that it is only a small proportion of trained nurses who will develop an interest in providing specialist SHC as measured in the studies reviewed here. For most nurses, involvement in SHC might be limited to a very basic inquiry, which may not be dramatically different from previous practices, and cannot be easily quantified. This could be seen as an increase in nurses' knowledge that is not necessarily translated into patient benefit, highlighting the necessity of other members of the multidisciplinary team to also have relevant training. Similar results of knowledge not necessarily translating into practice have been reported with multi-disciplinary teams (Jonsdottir et al., 2016). From an educational perspective, in multi-cultural contexts a goal of training programmes would be to prepare nurses to be culture/religion-aware when investigating SHC concerns. However, a more specific culture-sensitive approach would be required in single/dominant cultures with known societal meanings attached to sexuality.

Some authors have proposed a combination of patient-oriented and professional-oriented intervention approaches where communication skills training is a core element (Fitch et al., 2013; Reese et al., 2017; Vermeer et al., 2015). For CPD programmes, investing in sequential hands-on, clinic-based communication skills sessions could at least provide an indication of which nurses seem to be more apt to undertaking a role of SHC nurse in their clinical setting, and for whom a more intensive training programme would be warranted (Reese et al., 2017). Our analysis indicated that the duration of CPD programmes varied widely, and follow-up measurements were only short-term. Perhaps, a CPD programme that involves intermittent training sessions alternating between periods of theory-based/class-based skills sessions and in-clinic application and consolidation followed by 'feedback and troubleshooting' class-based sessions could have stronger intervention effects and

be associated to longer term gains in nurses' self-confidence and clinical practice behaviours. This then can be further evaluated by evaluating patient satisfaction of the SHC received.

Considering this evidence and discussion, and in order to enable uptake of an active nursing role in SHC and also trigger additional experimental work in this area, we propose an international competency chart that outlines key SHC competencies for nurses that can be flexibly adapted to different contexts and serve different levels of need. The chart proposes two levels of competency (entry-level and champion-level) in a transitional process that is facilitated by targeted training goals within a framework of continuing professional development (Fig. 2). This chart is in agreement with previous recommendations, advocating a two-tiered approach to SHC being relevant not only to nurses but also the wider multi-disciplinary team (de Vocht et al., 2011).

The entry level (perhaps, following targeted post-qualification training) guarantees that all nurses possess the basic knowledge and skills to include SHC in routine patient education and perform basic assessments of SHC deficits/concerns before relaying the information to other members of the multidisciplinary team. A transitional stage combines accumulated exposure to SHC provision, targeted post-graduate training, and personal motivation/interest in SHC to prepare a subset of nurses for the champion level. At this level, nurses act in a specialist way to further delve into patients' SHC concerns via use of expert knowledge, consolidated skills in dealing with sensitive issues, evidence-based patient education, and referral to specialist services as appropriate.

## 5. Limitations

We followed a rigorous and systematic approach to identify and select all eligible studies and assess and synthesise evidence according to PRISMA guidelines (Moher et al., 2009). We endeavoured to synthesise the evidence in an unbiased manner to promote reproducibility. However, some limitations still exist. In terms of the evidence base itself, most of the included studies were limited by their descriptive nature and potential sampling bias, which might give a distorted picture of the actual problem. With only five trials of low to moderate methodological quality

we were necessarily restricted in our conclusions regarding effectiveness and/or generalisability/applicability. We limited our searches to the English language only – potential publications in other languages, demonstrating practices from diverse cultures might have made our findings more culturally sensitive. Finally, we aimed to look at the grey literature, however, we only included searches in Google Scholar potentially excluding data available via other databases/repositories/sources.

## 6. Conclusion

SHC should be an integral part of holistic, person-centred care for patients with cancer. This systematic review replicates findings of our previous review that nurse-led provision of SHC in cancer care remains sub-optimal and challenging, due mainly to cancer nurses' assumptions and prejudices towards SHC, lack of confidence in dealing with sensitive issues, and an impeding health care system infrastructure. To realistically address this, our novel flexible, two-level chart promotes the development of basic SHC competence among all nurses caring for patients with cancer; this can subsequently lead to a more specialised, self-pursued role for a subset of nurses. The chart itself, potentially relevant to an international audience, can also be transferable to other long-term conditions. Accordingly, we propose more rigorous research to test multi-component CPD programmes, customised to meet entry-level and champion-level requirements for nurses to realise SHC in cancer care.

## Conflict of interest

All co-authors have seen and agreed with the contents of the manuscript, and there are no financial or personal conflicts of interest to report. We certify that the submission is original work and is not under review at any other publication.

## Funding

Funding: This work was supported by the [Burdett Trust for Nursing](#) [Ref: [SB\ZA101010662\270843](#)]. The views presented are those of the authors and not the funding body.

## Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.ijnurstu.2019.103405](https://doi.org/10.1016/j.ijnurstu.2019.103405).

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