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Evaluation of the role of the clinical Nurse Specialist in cancer care: an integrative literature review

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Abstract

Introduction: Although there is growing evidence the Clinical Nurse Specialist role makes a difference to patient care, the full value of this service may not be always appreciated with current models not meeting the needs of those with cancer. The primary aim of this integrative literature review was to evaluate outcomes associated with the role of the Clinical Nurse Specialist in cancer care. The secondary aim was to identify the components of the Clinical Nurse Specialist role in cancer care from the included papers in the literature review.

Methods: An integrative literature review using a systematic approach was adopted. Literature searches were undertaken in four databases and supplemented with a search in the grey literature and reference lists of included papers. Searches were limited to January 2009-July 2019 and those written in the English language. Three reviewers independently completed the searches and reviewed the papers before reaching a consensus.

Results: Fourteen eligible research papers were identified. Evaluations were predominately positive with the role contributing to improving patient outcomes with regards psychological support, information provision, symptom management, service coordination and patient satisfaction.

Conclusion: The findings of this literature review firmly establish the Clinical Nurse Specialist as a valuable member of the multidisciplinary team in enhancing cancer care services.

KEYWORDS

cancer, education, evaluation, information, nursing, review

1 | INTRODUCTION

There has been a growing international interest in extending nursing practice beyond the level acquired at initial registration (East et al., 2015) to advanced nursing roles. The role of the nurse has steadily evolved over the previous two decades due to influencing factors such as developments in healthcare delivery, financial restraints and

increasing service user expectations (Furlong & Smith, 2005). One commonly identified category of Advanced Practice Nursing is the Clinical Nurse Specialist (CNS) role (East et al., 2015; International Council of Nurses, 2020) which has been evolving over the past 20 years (Balsdon & Wilkinson, 2014). A CNS 'is an Advanced Practice Nurse who provides expert clinical advice and care based on established diagnoses in specialist clinical fields of practice' (International

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Council of Nurses, 2020, p. 6). Although the CNS role is embedded in healthcare services in a number of European countries, Asia, Canada and the United States of America, some countries are just beginning to develop the CNS role (Fulton, 2018).

The responsibilities of the CNS are multifaceted and diverse across different settings with responsibilities including management of care (Leary & Baxter, 2014) and patient caseloads (Vidall et al., 2011). The role also provides information and support, teaching, audit, research, service development (Farrell et al., 2011), with leadership and educational components (Henry, 2015). As an example, in the context of rheumatology, the CNS role was found to be 67% clinical, 21% administration, 6% educational, 4% research and 2% consultation (Royal College of Nursing, 2010), highlighting the diversity of the role. However, this versatility can result in role ambiguity, misinterpretation of their function and improper use (Glover et al., 2006), to the extent that managers may see the CNS role as an 'unaffordable luxury' (Vidall et al., 2011, p. S23).

Despite this, the role of the CNS is argued to be one of the successes of modern health care (Smy et al., 2011). The CNS role has long been recognised for their expertise in healthcare quality and positive patient outcomes (Fulton et al., 2016). Positive patient outcomes related to the role of the CNS have been reported to relate to the alleviation of suffering, assessing and meeting informational needs of patients, rescue work often related to toxicity of drugs, meeting psychological needs and access to knowledgeable professionals (Royal College of Nursing, 2010). There is growing evidence that the CNS role makes a considerable difference such as improving the patients' experience of care and increasing productivity (Baxter & Leary, 2011; Macmillan Cancer Support 2015a). An investment in the CNS role can generate efficiencies and even cost savings for the National Health Service (NHS) in the context of the United Kingdom (UK) (Vidall et al., 2011). It was estimated in 2010 that the provision of one to one specialist care exemplified by the cancer CNS model could reduce the net cost of cancer care in England by approximately £19 million per year (Frontier Economics, 2010).

In the context of oncology, the CNS role has played an important role in the NHS in the UK in improving the effective implementation of initiatives related to improving cancer services (National Cancer Action Team, 2010). The use of specialist nurses in cancer care in contributing to meeting targets for a quicker diagnosis and treatment is seen as essential (Corner, 2003). The specialist nature of the CNS in cancer care and their role as a key worker means they can quickly identify emerging issues that may require medical attention enabling care to be planned and emergency admissions avoided (National Cancer Action Team, 2010). A workload analysis related to the CNS in caring for individuals with lung cancer demonstrated a reduction in avoidable admissions for non-acute problems from four to a mean of 0.3 per month (Baxter & Leary, 2011).

Although there is growing evidence the CNS role makes a difference to patient care, the full value of this service is not always realised (Vidall et al., 2011). It has been suggested the current models of care for the CNS are not comprehensively meeting the needs of those with cancer (Macmillan Cancer Support 2015a),

highlighting the importance of evaluating the impact of the role on clinical processes and outcomes from the perspectives of both services users and service providers. As the CNS role meets a variety of needs which can be difficult to define and quantify, this has led to challenges in evaluating the role (Royal College of Nursing, 2009). However, despite these challenges, understanding the effectiveness of the CNS role on patient outcomes in cancer care remains critical (Fulton et al., 2016; Glover et al., 2006). It is, therefore, essential that data on clinical outcomes related to the CNS role are gathered (Smy et al., 2011) to demonstrate robustly if and how the CNS role contributes to the overall picture of health care. As the International Council of Nurses (2020) publishes guidelines on the CNS role, their contribution to patient care should be understood fully to provide assurance of effective use of resources (Balsdon & Wilkinson, 2014). The primary aim of this integrative literature review was to collate the research evaluating outcomes associated with the role of the CNS in cancer care. The secondary aim was to clarify the components of the CNS role in cancer care from the included papers in this literature review.

2 | METHODS

The integrative literature review was conducted using a systematic approach. An integrative approach was selected as the most appropriate methodology to address the aims of this literature review as it provides a framework to complete a comprehensive review which facilitates the inclusion of experimental and non-experimental research (Whittemore & Knafl, 2005). The five-stage framework includes problem identification, a literature search, data evaluation, data analysis and presentation (Whittemore & Knafl, 2005). This framework provided an approach to data analysis which involved an iterative process of constant comparison of relevant extracted data to facilitate the identification of themes and deviances. A systematic approach to data analysis involved four stages: data reduction, data display, data comparison and conclusion drawing and verification. Data reduction involved using a classification system for managing diverse methodologies, followed by data extraction and coding. Data display involved the development of charts to facilitate comparison of data from the primary sources. Data comparison involved an iterative process of examining the data displays to identify patterns, themes or relationships. Finally, conclusion drawing and verification consisted of an interpretation from the patterns to a higher level of abstraction in which commonalities and variations were identified (Whittemore & Knafl, 2005). An audit trail was also maintained throughout this process.

2.1 | Search method

Four databases were selected for the searches: Cinahl; Medline, PubMed and Cochrane Library. Key search terms were developed following an initial review of the literature and were subsequently

adapted to align to the primary aim of this literature review. The database searches involved the following key search terms which were linked together with the AND and OR Boolean operators; (a) Clinical nurse specialist, Specialist nurse, Nurse specialist, Specialist practice nurse, Advanced practice nurse; (b) outcome, effect, impact, Evaluat*; (c) cancer, oncology. Database searches were completed independently by the three authors who subsequently reached a consensus on the included papers. To supplement the database searches, reference lists of included papers and grey literature were also searched.

2.2 | Inclusion and exclusion criteria

The search strategy was limited to the years January 2009 to July 2019 to identify recent research studies and papers written in the English language. Reasons for papers being excluded at each stage included the research not being related to the primary aim of this literature review, research which also evaluated the role of other healthcare professionals in addition to the CNS, papers not published in the English language and research which evaluated other interventions not related to the CNS role.

2.3 | Data extraction and quality appraisal

Relevant data were extracted from each paper using a standardised data extraction form (HK), and this was independently reviewed (MD and OMcS). Relevant data extracted included the country, setting, study objective, study design, population, sample size, description of intervention, outcome measures, results and relevance. Components of the extracted data are included in Table 1: Data Extraction Table. The methodological rigour of each paper was assessed using the relevant Critical Appraisal Checklist from the Joanna Briggs Institute (2020). These structured tools consist of a series of questions related to the design and methodology of the research study, with the outcome of this process rating the methodological rigour in studies as weak, moderate or strong.

3 | RESULTS

3.1 | Outcome of literature search

The literature search was conducted in four databases in July 2019 with a total of 688 papers identified. No further papers were identified from reference lists of included papers or from the grey literature. Following removal of 168 duplicates, titles and abstracts were reviewed for 520 records with 468 papers identified as not being relevant. Fifty-two full-text papers were reviewed, and a further 38 papers were excluded, leaving 14 papers included in the literature review (Figure 1). Fourteen papers were examined to discover themes and deviances producing themes related to the primary aim of the literature review.

3.2 | Methodological characteristics

A range of countries were represented in the included papers: UK (n = 9), Australia and New Zealand (n = 1), Denmark (n = 1), Ireland (n = 1), Netherlands (n = 1) and South Korea (n = 1). Cancer diagnoses included a range of cancers (n = 3), breast cancer (n = 5), colorectal cancer (n = 1), gastric cancer (n = 1), gynaecological cancer (n = 1), hepatobiliary and pancreatic cancer (n = 1), lung cancer (n = 1) and prostate cancer (n = 1). Seven studies used a quantitative research design (Beaver et al., 2009; Griffiths et al., 2013; Hardie & Leary, 2010; Jeyarajah et al., 2009; Jordan et al., 2017; Kim, 2011; Visser et al., 2015), three used a qualitative research design (Beaver et al., 2010; Borland et al., 2014; Cook et al., 2019), two used a mixed methods approach (Droog et al., 2014; Ream et al., 2009), one study used an audit (Pollard et al. 2010) and one study used a multiple case study design (Tod et al. (2015). Twelve studies were reported from the patients perspective (Beaver et al., 2009; Jeyarajah et al., 2009; Pollard et al. 2010; Ream et al., 2009; Beaver et al., 2010; Hardie & Leary, 2010; Kim, 2011; Griffiths et al. 2013; Droog et al., 2014; Visser et al., 2015; Jordan et al., 2017), one study from the carers perspective (Borland et al., 2014), three studies from the healthcare professionals perspective (Cook et al., 2019; Ream et al., 2009; Tod et al., 2015) and three studies which included the perspective of the CNS (Droog et al., 2014; Kim, 2011; Ream et al., 2009).

3.3 | Methodological rigour

Of the 14 studies included in the review, five were rated as having strong methodological rigour (Beaver et al., 2009; Cook et al., 2019; Griffiths et al., 2013; Jordan et al., 2017; Kim, 2011), eight as having moderate methodological rigour (Pollard et al. 2010; Beaver et al., 2010; Borland et al., 2014; Droog et al., 2014; Jeyarajah et al., 2009; Ream et al., 2009; Tod et al., 2015; Visser et al., 2015) and one as having weak methodological rigour (Hardie & Leary, 2010) as assessed using the Joanna Briggs Institute (2020). This information is provided in Table 1.

4 | RESULTS/FINDINGS

4.1 | Primary and secondary aim of integrative literature review

The primary and secondary aim of this literature review will be addressed in this section. The primary aim was to evaluate the outcomes associated with the role of the CNS in cancer care. Evaluations were predominately positive. The outcomes associated with evaluating the role of the CNS were focused on six key areas: psychological outcomes; information outcomes; clinical outcomes; service delivery outcomes; patient satisfaction; and cost-effective outcomes. The secondary aim of this integrative literature review was to identify the components of the CNS role in

TABLE 1 Information on included papers

Authors Country Cancer diagnosis	Aim of research	Research design Number of participants recruited	Outcome of critical appraisal	Main Findings
Beaver et al. (2009) Breast cancer United Kingdom	To compare traditional hospital follow-up with medical consultant with telephone follow-up with specialist nurses after treatment for breast cancer.	Quantitative randomised equivalence trial	Strong	Women in telephone group were no more anxious as a result of foregoing a clinical examination and face-to-face consultations. Women reported higher levels of satisfaction than those attending hospital clinics. The number of clinical investigations ordered did not differ between the two groups. There were no differences between groups for time to detection of recurrences. Overall, no physical or psychological disadvantages with telephone follow-up for low-to-moderate risk of recurrence for women with breast cancer.
Beaver et al. (2010) Breast cancer United Kingdom	To explore the views of patients and specialist breast care nurses regarding telephone follow-up after treatment for breast cancer.	Qualitative interviews with individuals with breast cancer and also Clinical Nurse Specialists.	Moderate	Overall, positive views on telephone follow-up were reported by patients and the CNS. Telephone appointments by CNS were punctual (hospital appointments were not as punctual). Telephone follow-up helped individuals with breast cancer to organise their day more effectively especially those who had busy working lives. Telephone follow-up with more convenient when compared to travelling to hospital for an appointment.
Borland et al., (2014) Range of cancers United Kingdom	To retrospectively explore partners understandings and experience in relation to caring for a loved one with a terminal illness, with a particular focus on the role of the hospice nurse specialist.	Qualitative interviews with bereaved partners.	Moderate	Partners saw the Hospice Nurse Specialist as a confidante in caring. Bereaved partners considered the Hospice Nurse Specialist as a champion in providing support. The work of the Hospice Nurse Specialist was an unseen benefit which extended to supporting carers in addition to the patients for many participants. The work of the Hospice Nurse Specialist was seen as crucial in providing the necessary practical skills and instruction in preparing for death and bereavement.
Cook et al., (2019) Gynaecological cancer Australia and New Zealand	To determine how members of gynaecological oncology multidisciplinary teams experience and perceive the specialist nurse role.	Qualitative online qualitative survey	Strong	Overall, the role of the gynaecological oncology specialist nurse was evaluated positively by other healthcare professionals such as nurses, medical staff, social workers, dietician, psychologist and radiation oncologist. The role of the oncology specialist nurse was considered to provide contact, communication and coordination; support and advocacy; knowledge and education; assessment, referral and management. There were some reports of role overlap between treatment team members and specialist nurses.

(Continues)

TABLE 1 (Continued)

Authors Country Cancer diagnosis	Aim of research	Research design Number of participants recruited	Outcome of critical appraisal	Main Findings
Droog et al., (2014) Breast cancer Ireland	To examine the informational role of CNS in supporting Irish patients during their breast cancer journey and the extent of its impact on their care.	Mixed methods study- Survey instrument administered to individuals with breast cancer followed by interviews with the teams CNS.	Moderate	Overall, patients reported a positive impression of their care. Patients were least satisfied with the amount of information and emotional support they received during their chemotherapy. CNS commented there is insufficient staffing in medical oncology to address this need and there is ambiguity regarding the job description.
Griffiths et al. (2013) Range of cancers United Kingdom	To assess whether variation in the provision of cancer specialist nurses is associated with the experiences of care for patients undergoing treatment for cancer.	Quantitative cross-sectional survey	Strong	High levels of specialist nurse staffing were significantly associated with reports of better experience on some but not all items. Trust with high levels of specialist nurse staff, patients were more likely to report that professionals worked well together to provide best possible care, and they received enough emotional support. These Trusts also reported patients were more likely to be given the name of a specialist nurse and to find it easier to contact them. However, high levels of specialist nurse staff were not significantly associated with patient reports of being treated as a set of cancer symptoms, given the right amount of information, support or symptom control for people undergoing chemotherapy or radiotherapy.
Hardie and Leary (2010) Breast cancer United Kingdom	To compare patient experiences of the breast cancer nursing services before a clinical nurse specialist was established in post and then one year after appointment.	Quantitative questionnaire survey	Weak	Overall, the evaluation showed that the CNS improved respondents' experience and satisfaction with the breast cancer service. Pre introduction of the CNS –38% of patients described their experience of treatment as excellent and post the introduction of the CNS role, 56% of patients stated it as excellent. Pre introduction of the CNS Specialist–71% of patients said they had enough opportunity to discuss worries or concerns and post introduction of the CNS role, this increased to 82%.
Jeyarajah et al. (2009) Colorectal cancer United Kingdom	To examine the efficacy and the final implications of a Colorectal Nurse Specialist follow-up clinic for patients undergoing colorectal cancer resections.	Quantitative prospective study	Moderate	Nurse-led clinic for following up colorectal cancer can decrease the previously reported cost of follow-up that was calculated in a doctor-led setting. Nurse-led clinic easy to organise and maintain on a long-term basis. Multiple roles of nurse specialist clinician, coordinator, patient liaison-counsellor, transformed their role into keyworker of the team and a constant contact person for patients for advice, up to date information and reassurance. Nurse-led clinic vastly improved patient care in symptom management and quality of life.

(Continues)

TABLE 1 (Continued)

Authors Country Cancer diagnosis	Aim of research	Research design Number of participants recruited	Outcome of critical appraisal	Main Findings
Jordan et al. (2017) Range of pelvic cancers United Kingdom	Cost-utility analysis where the effectiveness metric, quality-adjusted life years (QALYs) reflects morbidity or health-related quality of life associated with the alternative strategies. Secondary analysis concerned the cost per unit of therapeutic gain from the algorithm, using the IBDQ-B.	Quantitative economic evaluation of a randomised controlled trial.	Strong	The mean cost of treatment was £895 for the CNS and £1101 for the consultant. Lower costs associated with the nurse-led care was largely attributed to salary differences and less medication prescribing; the application of the algorithm result in very similar diagnostic and non-pharmacology treatment cost for the two types of practitioners.
Kim (2011) South Korea Gastric, colorectal, lung and breast cancer	To demonstrate the effect of oncology CNS interventions on patients with cancer undergoing chemotherapy.	Quantitative quasi experimental design	Strong	57% of CNS role in education of patients and Registered Nurses. CNSs were found to diminish some intensity scores pain and fatigue and to increase health-related quality of life, satisfaction with trustworthiness and ease of access. There were no significant effects observed on anxiety or unexpected Emergency Room visits.
Pollard et al. (2010) Hepatobiliary and pancreatic cancer United Kingdom	To determine whether CNSs were providing an adequate service.	Retrospective and prospective audit	Moderate	Majority of patients were positive about the CNS service. Many found the CNS service useful and well-utilised. Overall, the CNS performed well in each of their designated tasks. Patients awareness of their diagnosis improved following a meeting with the CNS. The CNS gave good information regarding what further investigations were required and the time frame for these investigations. CNS had an important function in the Multidisciplinary Team meetings of the role. Patients were aware they are being discussed at these meetings. 91 contacts between the CNS and the patient via telephone over a 11-week period. 42 conversations directly impacted on the clinical care of patients such as organising admissions, expediting outpatient clinic appointments, streamlining investigations or advice re cessation of anticoagulants and aspirin and restarting regular medications.
Ream et al. (2009) Prostate cancer United Kingdom	To investigate prostate cancer clinical nurses' specialist' roles to determine whom they targeted services at and determine their work practices and perceived contribution.	Mixed methods multisite exploratory descriptive design.	Moderate	Practice of CNS varied across National Health Services Trust sites. There was great variation in the qualifications and experience of nurse specialists. Services provided included generic support, emotional support and reassurance, generic elements of care, giving test results, breaking bad news, providing interventions to address physical problems, providing information, providing nurse-led clinics. Aim of service was to relieve doctors increased workload form burgeoning numbers of patients with prostate cancer. Patients perceived CNS as point of contact and a 'personal nurse' in the context of a service that was impersonal and difficult to access.

(Continues)

TABLE 1 (Continued)

Authors Country Cancer diagnosis	Aim of research	Research design Number of participants recruited	Outcome of critical appraisal	Main Findings
Tod et al. (2015) Lung cancer United Kingdom	To examine the nature of the Lung Cancer Nurse Specialist role and understand how it is operationalised, with the patient and multidisciplinary team to facilitate access to treatment.	Multiple case study design using semi-structured interviews, observation and a framework analysis technique.	Moderate	The Lung Cancer Nurse Specialist is crucial in the multidisciplinary team and can act as a catalyst to patient access to treatment. The role is involved in clinical activity such as assessment, managing symptoms, psychological support and information provision. The role is available to patients across the whole cancer pathway, maintaining a holistic focus. Advanced level of working made services more efficient and enabled timely patient access to interventions. Helps to resolve diagnostic confusion for patients. Advocating for patients in multidisciplinary meetings and contributed to decision making. Supported better management of symptoms such as breathlessness, pain, fatigue thus improving eligibility for treatment. Swift accurate prescribing.
Visser et al. (2015) Breast Cancer Netherlands	To evaluate the feasibility of Clinical Nurse Specialist-led Breast Self-Examination education based on the Health Belief Model as part of BRCA surveillance and to evaluate the effects and feasibility of additional written information leaflets concerning Breast Self-Examination.	Quantitative randomised controlled trial.	Moderate	Patient satisfaction with the CNS-led education was high. Significant increase in the self-reported frequency of Breast Self-Examination after CNS-led education.

cancer care from the included papers in the literature review. The four specific components of the CNS role identified includes: the provision of psychological support; education and information; clinical contribution; and service delivery. The primary aim will be the initial focus in each section followed by a focus on the secondary aim, when relevant.

4.2 | Psychological outcomes

The CNS role was positively evaluated in a number of studies in providing psychological support to individuals living with cancer and their carers. In a quantitative study, individuals with a range of cancers were more likely to report they received enough emotional support in areas with higher levels of specialist nurse staffing (Griffiths et al., 2013). Although the sample size in this study was 67,713, this was an observational study so the authors acknowledge no causal inference can be made. Ream et al. (2009) reported in a mixed methods study which involved 4 prostate cancer CNS's, 19 of their colleagues and 40 men they provided care to, that individuals with prostate cancer valued the psychological

support offered by CNSs. Individuals with breast cancer reported an increase from 71% (pre introduction of the CNS role) to 82% (after the introduction of CNS role) for opportunities to discuss worries or concerns (Hardie & Leary, 2010). In a randomised equivalence study comparing a telephone consultation with a CNS, with a face-to-face consultation with a medical doctor, there were no differences in the anxiety levels for individuals with breast cancer between the two groups (Beaver et al., 2009). Borland et al. (2014) reported in a qualitative study that bereaved carers of individuals who had a range of cancers retrospectively reported they felt at ease discussing their concerns with the CNS, with reports their anxieties were relieved. Conversely, in a mixed methods study, the dimension of care that received the lowest score rating from individuals with breast cancer related to emotional support, specifically, the lack of information about the possible changes in their emotions during their care (Droog et al., 2014). Studies to support the positive role of the CNS in supporting individuals psychologically represented three quantitative studies, two mixed methods studies and one qualitative study. Two of the quantitative studies were rated as strong methodological rigour with 67,713 (Griffiths et al., 2013) and 374 (Beaver et al., 2009) individuals with cancer,

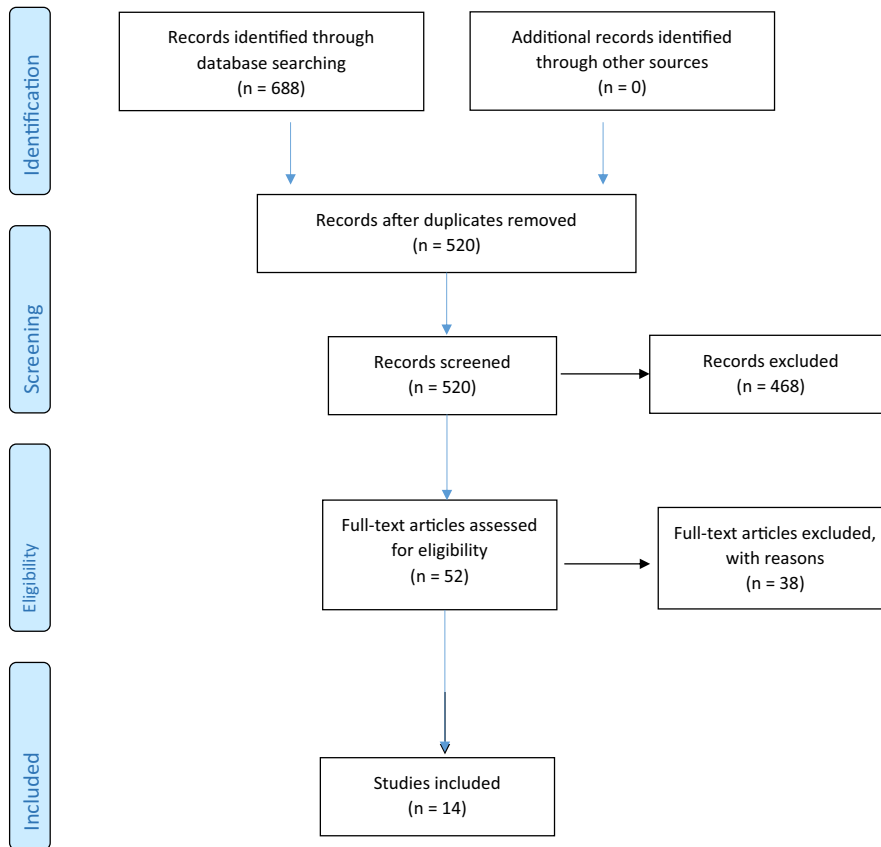


FIGURE 1 PRISMA Flow Diagram (Moher et al., 2009).

three as having moderate methodological rigour and one as having weak rigour (Table 1).

In addressing the secondary aim of this literature review, providing psychological support to service users was identified to be a key component of the CNS role in cancer care (Cook et al., 2019; Griffiths et al., 2013; Jeyarajah et al., 2009; Kim, 2011; Ream et al., 2009). Jeyarajah et al. (2009) reported the multiple roles of the CNS which included a person who provided reassurance to individuals with colorectal cancer. Griffiths et al. (2013) reported individuals with a range of cancers felt the CNS saw their cancer in the context of the person's whole life, rather than just a set of symptoms, highlighting the holistic and supportive approach of the CNS role. The CNS was reported to provide emotional support and reassurance in challenging communicative scenarios such as sharing test results with men with prostate cancer (Ream et al., 2009) and to women with gynaecological cancers and their families (Cook et al., 2019). Bereaved carers of individuals with a range of cancers reported the CNS was viewed as a confidante as they did not wish to burden other family members with their concerns (Borland et al., 2014).

4.3 | Information outcomes

The component of the CNS's role which includes providing information and education has led to improvements in patient's knowledge

and understanding. In a retrospective and prospective audit, Pollard et al. (2010) reported the CNS improved awareness of the diagnosis and improved information on investigations and the associated time-frame, for individuals with hepatobiliary and pancreatic cancer. The CNS, and individuals with prostate cancer, both reported the CNS facilitated improved access to information in a mixed methods study (Ream et al., 2009). In a quantitative study which evaluated the impact of the CNS providing education sessions on breast self-examination following a breast cancer diagnosis, the education provided by the CNS resulted in an increase in self-reported frequency of breast self-examination following the nurse-led consultation (Visser et al., 2015). However, the small sample size of 29 who completed the questionnaire following the intervention in this study brings limitations to the generalisability of these findings. Data collection was limited to three months following the intervention, so no longer-term implications of the intervention were measured. Borland et al. (2014) reported in a qualitative study that bereaved carers of individuals with a range of cancers valued the role of the specialist nurse with regards information on financial matters. In a cross-sectional study by Griffiths et al. (2013), there were no differences reported from individuals with a range of cancers in being given the right amount of information between Health and Social Care Trusts in the UK which had fewer patients per specialist nurse and Health and Social Care Trusts which had the most patients per specialist nurse. The CNS's in this study stated this was due to staff shortages as a result of an embargo on staff recruitment and ambiguity regarding the role of

the CNS. Conversely, it was reported in a mixed methods research study that 59% of individuals with breast cancer stated they did not get enough information about their nutritional needs from the CNS (Droog et al., 2014). Studies to support the beneficial role of the CNS in providing information are characterised by two quantitative studies, two mixed methods studies, one qualitative study and one audit with one study having strong methodological rigour and five studies having moderate methodological rigour (Table 1).

In addressing the secondary aim of this literature review, the above discussion identifies the components of the role of the CNS as providers of education in individuals with prostate cancer (Ream et al., 2009), colorectal cancer (Jeyarajah et al., 2009) and hepatobiliary and pancreatic cancers (Pollard et al. 2010). Carers also benefited from the information provided (Borland et al., 2014).

4.4 | Clinical outcomes

The CNS role in cancer care was reported to improve clinical outcomes, particularly in relation to symptom management. In a quantitative study, Kim (2011) reported the CNS had diminished some intensity scores for pain and fatigue and increased health-related quality of life for individuals with a range of cancers. This study compared outcomes including pain, fatigues, anxiety, health-related quality of life, among other outcomes, for individuals being cared for by a CNS, to those who were not being cared for by a CNS. In this longitudinal study, data were collected from 112 participants ($n = 65$ experimental group; $n = 47$ control group) at baseline and again after two chemotherapy sessions. This captured the long-term effects of the CNS intervention. A multiple case study design with four lung CNS and 24 clinicians reported the role of the CNS was considered to support better management of symptoms and swift accurate prescribing (Tod et al., 2015). A prospective research study highlighted that nurse-led clinics vastly improved symptom management for individuals with colorectal cancer, although outcome measures were not used (Jeyarajah et al. 2009). In a cross-sectional study by Griffiths et al. (2013), individuals with breast cancer were more likely to report good support for the control of side effects from chemotherapy in Trusts which had fewer patients per specialist nurse. A quantitative study by Jordan et al. (2017) randomised patients with a range of cancers into one of three groups; usual care which involved patients being given a written booklet, nurse-led algorithmic care, and, finally, consultant led algorithmic care. With regard to symptom management, this study reported symptoms had improved to a similar extent in the nurse and consultant arms of the study over a six-month period for individuals with gastric cancer. There were also no differences between these two groups on the number of clinical investigations ordered and time to detection of recurrences. In a quantitative study (Beaver et al., 2009), individuals with breast cancer who were a low-to-moderate risk of recurrence were randomised into one of two arms; the traditional care which involved medical consultation, clinical examination and mammogram or to telephone follow-up with specialist nurses which involved

consultation, structured intervention and mammogram. There were no differences between the groups with regards investigations ordered. Studies which supported the positive impact of the clinical role of the CNS represented four quantitative studies, one mixed methods study and one multiple case study design. Four were assessed as having strong methodological rigour and two as having moderate methodological rigour (Table 1).

In identifying the components of the CNS role related to the secondary aim of this literature review, the clinical aspect involved providing direct care to patients, with reports specifically related to improving symptom management (Jeyarajah et al., 2009; Kim, 2011; Tod et al., 2015). Specific symptoms reported to be improved included breathlessness, pain and fatigue (Kim, 2011; Tod et al., 2015).

4.5 | Service delivery outcomes

The CNS role in cancer care was evaluated as having a positive impact on improving service delivery. This was in relation to reports of continuity of care, patient advocate and increased access to services such as the medical consultant. Continuity of care by the same breast care nurse and the trusting relationship developed was reported to improve the experience of service delivery for individuals with breast cancer (Beaver et al., 2010). The CNS being a continuous accessible point of contact who provided a personal approach in the context of a service that was otherwise impersonal was reported by individuals with prostate cancer in a mixed methods study (Ream et al., 2009). High levels of specialist nurse staffing were significantly associated with reports of better experiences for patients with a range of cancers such as being more likely to be given the name of a specialist nurse and finding it easy to contact the specialist nurse (Griffiths et al., 2013). The CNS acknowledged the value of their role in advocating for patients, a finding also reported by individuals with prostate cancer (Ream et al., 2009) and those with hepatobiliary and pancreatic cancer (Pollard et al., 2010). In a quasi experimental research study by Kim (2011), individuals with a range of cancers reported the CNS had positive effects on ease of access to services. Access to additional services such as the medical consultant was reported by bereaved carers of individuals with a range of cancers, which improved the timely delivery of services, was reported in a qualitative study (Borland et al., 2014). This study recruited seven participants, one of which was female, and the time from bereavement was from 3 months to 2.5 years. Although these insights are very useful, the range of time frames should be considered when interpreting the results as recall bias may be a possibility.

The role of the CNS was also evaluated positively by clinical colleagues in improving experiences of service delivery. Medical consultants from across four Health and Social Care Trusts in the UK reported the pressure was eased on their role as CNS's substituted for them in running nurse-led clinics for individuals with prostate cancer (Ream et al., 2009). Using an online qualitative survey, the role of the CNS was evaluated positively by healthcare professionals such as medical staff, nurses, social workers, dieticians and

psychologists in caring for individuals with gynaecological cancer, with reports the CNS was the 'glue of the team' (Cook et al., 2019). Although these insights highlight the value and contribution of the CNS role, participants shared a concern regarding the possibility of a growing dependence on the CNS which could result in other team members not fulfilling their role with a need for an approach which mitigated this. The CNS role was largely valued by the healthcare team in this study with the majority stating the CNS should be involved in all parts of the patient trajectory. There were, however, some concerns expressed in this study about a possible overlap of the CNS role with other professions. The studies which reported positive benefits of the CNS role in improvements in service delivery outcomes related to three quantitative studies, two qualitative studies, one mixed methods study and one audit. Three were assessed as having strong methodological rigour and four as having moderate methodological rigour (Table 1).

In addressing the secondary aim of this literature review, the final key component associated with the role of the CNS role in cancer care identified in the included papers in this literature review, related to the CNS being a continuous and accessible healthcare professional who could improve access to services. This was acknowledged by patients (Jeyarajah et al., 2009), carers (Borland et al., 2014), colleagues of the CNS (Cook et al., 2019) and also the CNS (Ream et al., 2009). To achieve this, the CNS used their advanced skills to accurately assess the patient, with appropriate timely referrals being made to other relevant services (Cook et al., 2019).

4.6 | Satisfaction outcomes

Individuals with cancer and their carers reported improvements in their overall satisfaction of services as a result of the contribution of the CNS (Beaver et al., 2009; Borland et al., 2014; Droog et al., 2014; Hardie & Leary, 2010; Visser et al., 2015). Visser et al. (2015) reported that women with breast cancer were highly satisfied with CNS-led education for breast self-examination, and in a study by Droog et al. (2014), patients rated highly the quality of care received during their treatment for breast cancer. Hardie and Leary (2010) reported there were improvements in the experiences of treatment for individuals with breast cancer increasing from 38% (pre introduction of Breast Care CNS service) to 56% after the introduction of a CNS service. In a quantitative study (Beaver et al., 2009) individuals with breast cancer who were randomised into the telephone arm of a randomised equivalence trial for follow-up with specialist nurses, rather than the traditional care which involved medical consultation, the telephone arm showed significantly more satisfaction at the middle and end of the trial. For bereaved carers of individuals who had cancer, they viewed the relationship with the Nurse Specialist as meaningful and vital to their well-being in a profound way, indicating a level of satisfaction (Borland et al., 2014). Studies which demonstrated the CNS role having a positive impact on patient satisfaction represented three quantitative studies, one qualitative study and one mixed methods design with one study assessed as having strong

methodological rigour, three having moderate methodological rigour and one as having weak methodological rigour.

4.7 | Cost-effective outcomes

There were reports the role of the CNS in cancer care also had cost benefits. Jordan et al. (2017) reported that outcomes for algorithmic-based treatment delivered by a CNS for individuals with a range of pelvic cancers after they received radiotherapy were largely equivalent to algorithmic-based treatment provided by a consultant gastroenterologist. In this randomised controlled trial, economic outcomes were measured at baseline and a 6-month follow-up. The intervention costs included visits to the nurse or gastroenterologist, investigations, medications and treatments with the mean cost of treatment for the CNS reported as £895 in comparison with £1101 for the consultant. A prospective study by Jeyarajah et al. (2009) examined the efficacy and financial implications of a Colorectal CNS follow-up clinic for patients undergoing colorectal cancer resections over a three-year period. The findings reported the Nurse-led clinics can decrease the previously reported cost of follow-up that was calculated in a doctor-led setting. Both of these studies used a quantitative research design with one assessed as having strong methodological rigour and one as having moderate methodological rigour.

5 | DISCUSSION

The primary aim of this integrative literature review was to evaluate outcomes related to the role of the CNS in cancer care. The findings were predominantly positive with regards the contribution of the CNS in caring for individuals with cancer, and their carers, and also in their contribution to the multidisciplinary team as reported by their clinical colleagues. Previous evidence has implied the full value of the CNS role has not always been appreciated (Vidall et al., 2011) with a suggestion the current models of care for the CNS are not fully meeting the needs of those with cancer (Macmillan Cancer Support 2015a). The findings of this integrative literature review firmly establish the CNS role in cancer care as an essential, valuable and cost-effective member of the multidisciplinary team from the perspective of individuals with cancer, carers, clinical colleagues and the CNS, with positive outcomes reported associated with their contribution to care delivery.

The International Council of Nurses (2020) state the role of the CNS should involve a combination of direct and indirect care. Direct care involves care to patients and families which may include the diagnosis and treatment of disease, whilst indirect care involves the implementation of improvements in the healthcare delivery system. Direct care is borne out in the findings of this literature review identified through the components of the CNS role in providing psychological support, information and education and the clinical component of the role. Indirect care is also discernible in the findings related to the coordination of services and the advocacy role. An

additional component of indirect care outlined by the International Council of Nurses (2020) which applies to all CNS roles relates to the contribution to research; however, this did not emerge as a core component of the CNS role in this literature review; hence, the rationale it was not outlined when presenting findings related to the secondary aim of this literature review. The apparent absence of the research component of the CNS role is likely to be as a result of it being a hidden element which is not immediately visible to patients, carers and other healthcare professionals, yet could be embedded in their role. This is evidenced in two studies, with research being identified by the CNS as a component of their role (Kim, 2011; Ream et al., 2009) but was not identified by other participant groups. In the development of the CNS role in cancer care, it remains imperative that job descriptions include a contribution to the design, implementation and evaluation of research in the clinical environment. Furthermore, as outlined in the introduction, additional components of the CNS role could include a leadership role and contributions to service development (Farrell et al., 2011; Henry, 2015). Although some of the included papers included in this review made reference to these components, it did not emerge as a core component in this review. Similar to the hidden research component of the CNS role, leadership and service development, in addition to other aspects of the role such as autonomy, may not be immediately visible to service users who were the key participants in the included studies in this literature review. Therefore, it is recommended that a literature review specifically focused on the CNSs' perspective of their role would be valuable in identifying the breadth of the components of the CNS role.

Twelve of the 14 studies in this literature review focused on the patients' perspectives of the role of the CNS with one study evaluating the role from the carers' perspective, three from the CNS perspective, and three studies focused on healthcare professionals evaluating the CNS role. Although the multiple perspectives added value to this literature review in providing a triangulation of perceptions, the lack of recent evaluation studies from non-patient groups highlights the need for further research on the perspectives of carers and clinical colleagues.

The secondary aim of this integrative literature review related to clarification of the components of the CNS role in cancer care. There have been reports related to the CNS role in cancer care not being clearly defined (Pollard et al. 2010); however, this review has clearly articulated the overarching components of the CNS role. The CNS role in cancer care was reported to improve patient outcomes by providing psychological support, provision of information and education, a contribution to clinical care with outcomes in relation to improvements in symptom management and, finally, enhancing service delivery, principally through improved access to other services and their contribution to the multidisciplinary team. The CNS role was described as the 'hub' (Tod et al., 2015) and the 'glue' (Cook et al., 2019) of the multidisciplinary team highlighting their significant contribution to team working. It was also reported there were variations across settings related to the components of role (Griffiths et al., 2013; Ream et al., 2009; Tod et al., 2015). Previously, there has been

criticism of the versatility of the CNS role, leading to accusations of role ambiguity and misinterpretation of their function and improper use (Glover et al., 2006). These disparities highlight the need for the CNS role to be responsive and adaptive to the contextual variations in different geographical locations and in different cancer types, so the CNS role must be flexible. This is a strength rather than a criticism of the role.

The findings of this integrative literature review identified areas which could be improved related to the role of the CNS in cancer care. These areas included ensuring adequate staffing of services provided by CNSs (Droog et al., 2014) and a clear definition of the boundaries of the role to minimise overlap with other healthcare professionals (Cook et al., 2019). It is recommended that each individual with a diagnosis of cancer is allocated a key worker (National Institute for Health and Social Care Excellence 2004; Macmillan Cancer Support 2015b), and the CNS is suggested to be one of the healthcare professionals who could competently fulfil this role in cancer care (Macmillan Cancer Support 2015a; National Institute for Health and Social Care Excellence 2016). The funding of CNS roles in cancer care is significantly supported by the non-statutory sector in the context of the UK with Macmillan reporting in 2015 they helped to fund or support 4,323 nurse posts, many of which were CNS posts, who collectively supported over 500,000 patients with cancer (Macmillan Cancer Support 2015a). In spite of this financial investment, there are reports of marked inequities in the provision of specialist nurse support for those with different cancer types, despite evidence which indicates the provision of specialist nurse support is an important quality indicator for quality of cancer services (National Cancer Action Team, 2012). The findings of this literature review provide further evidence of the positive outcomes associated with the role of the CNS in cancer care and the need for all individuals with a cancer diagnosis to have access to a CNS.

5.1 | Strengths and limitations

One of the strengths of this integrative literature review relates to the inclusion of a range of perspectives, providing a triangulation of perceptions related to the CNS role in cancer care. The literature review also included a range of cancers as it aimed to capture an overarching evaluation of the role of the CNS in the cancer context. The most common cancer types globally are reported as breast, lung and bowel (World Health Organization 2018), and these were represented in this literature review, with breast cancer featuring the most frequently with five of the 14 papers dedicated to this cancer type. The dominance of breast cancer CNSs in research studies is likely to be due to many of the CNS roles historically being in breast cancer (National Cancer Action Team, 2012). Only one paper in this review exclusively focused on lung cancer and one paper specifically on bowel cancer highlighting the need for further research related specifically in these populations. A further strength of this literature review was the search and selection process were completed by

three reviewers before reaching a consensus on the included papers, enhancing the reliability of the process. A limitation of this literature review was a number of the research studies evaluated interventions which included other healthcare professionals in addition to the oncology CNS role, resulting in these papers being excluded. A further limitation related to the range of evaluation techniques in determining outcomes associated with the role of the CNS in cancer care, which led to challenges in analysing and reporting the results. Notwithstanding, the value of this integrative literature review was the inclusion of experimental and non-experimental research designs leading to a more heterogeneous methodological approach and the inclusion of a greater consortium of studies related to the aims of this literature review.

6 | CONCLUSIONS

The findings of this literature review have provided convincing evidence of the positive impact the CNS role has in improving outcomes for individuals with cancer, as reported by service users, carers, the multidisciplinary team and the CNS. Evaluations have clearly identified the positive contribution with regards improvements in supporting individuals with cancer, meeting their information needs, symptom management and a more streamlined access to appropriate services. Furthermore, overall satisfaction scores related to the patients' experience of services were improved when the role of the CNS contributed to their care, with reports of moderate cost benefits.

The ongoing debate which has interrogated the value of the CNS in cancer care should now progress to how these valuable roles can be maximised to their full potential in the context of the multidisciplinary team. Although overarching components of the role have been identified in this review, the role is multifaceted and should remain versatile in responding to contextual variations. The findings of this integrative literature review firmly establish the CNS role in cancer care as an essential, valuable and cost-effective member of the multidisciplinary team.

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CONFLICT OF INTEREST

The authors have no known conflicts of interest to declare.

AUTHOR CONTRIBUTIONS

HK is the lead author and key contributor to the writing and revisions of the manuscript. All authors completed the database searches and reviewing of papers in the literature review. MD and OMCS were

contributors to the writing of the manuscript and revisions. All authors read and approved the final manuscript.

ETHICAL APPROVAL STATEMENTS

This is not a research study so no ethical approval was required.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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