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Systematic review of nurse-led clinics to support persons with head and neck cancer

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Abstract

Aims The aim of this systematic review was to critique research examining the use of nurse-led clinics for head and neck cancers.

Method This review was conducted using the Pickering systematic literature review framework. Searching during November 2021, research published between 2011–2021 from the databases MEDLINE, Scopus, PsychINFO, Cochrane and CINAHL was appraised using the Mixed Methods Appraisal Tool (MMAT), descriptive quantitative analysis and thematic analysis.

Results A total of 134 articles were recovered, with 13 studies included for analysis. Of these, seven were cohort studies, four were observations-based and five were randomised control trials. Furthermore, 12 of these studies highlighted the role of an outpatient clinic-based nurse practice, and four were based on the generalised role of an advanced practice nurse. Of all 13 studies, only one was based in Australia, with the majority based in either Europe (7) or the USA (8).

Conclusion Nurse-led clinics for head and neck cancer follow ups show promising results to improve patients' quality of life. All 13 studies showed an increase in patient-reported quality of life. Further research may be required to study the financial and resource availability for the utilisation of nurse-led clinics in the future.

Impact This study addressed a gap in knowledge of the success and distribution of nurse-led clinics in the field of head and neck cancers. Overall, there is a strong outcome of feasibility and quality patient outcomes for nurse-led clinics. However, there are low sample sizes in the articles found. This may have future impacts on policy and resource funding for further development of nurse-led services; however, further research will be required.

Introduction and background

Cancers of the head and neck are not only clinically and physically complex but also present with a large array of complications both medically and psychologically¹. Common practice for head and neck cancer treatments includes but is not limited to radiation therapy, chemotherapy, surgery, immunotherapy and targeted therapies². In many cases, this often results in a short hospitalisation period followed by intensive outpatient therapy and follow up³.

Often, radiation therapy is considered as a first line treatment for head and neck cancers; however, this is accompanied by an array of complex and harmful side effects. Early side effects

may include inflammation of the mucosa, difficulty and pain on swallowing, dermatitis, and inability to obtain adequate nutrition¹. Long-term side effects may include damage to oral and facial features, permanent lymphoedema, loss of oral function, tissue necrosis, and many more⁴. Following this, issues arising following treatment for head and neck cancer are centralised around nutrition, activities of daily living, general life satisfaction and psychological needs^{5,6}.

In modern medicine, the 30-day hospital readmission rate is a commonly used predictor for quality care provision and analysis of subsequent financial burden of disease⁷. In general, the 30-day hospital readmission rate is substantially higher for those

undergoing radiation therapy compared to surgical treatment⁸. Utilisation of an ongoing nurse-led clinic follow up is shown to reduce hospital readmissions in head and neck cancer and influence quality of life⁹. Furthermore, nurse-led clinics are also associated with increased nurse satisfaction and retention, both are which are ever growing concerns within the healthcare economy^{10,11}.

From a historical context, nurse-led clinics for cancer care were envisioned as an ambulatory-based service that would aid in filling the gaps in healthcare service and delivery¹². As an example, a nurse-led surveillance follow-up program for colorectal cancers was shown to be effective in detecting cancer recurrence and was associated with a highly regarded patient satisfaction rate¹³. Furthermore, nurse-led clinics are shown to be more cost-effective than traditional service delivery owing to reduced emergency room visits, less provider costs, shortened healthcare admissions, and less operational resource requirements^{14,15}. From a patient perspective, nurse-led clinics are highly regarded financially due to less out-of-pocket expenses, reduced wait times and, in rural and regional areas, less cost for travel^{16,17}.

A recent scoping review of nurse-led general oncology clinics across countries in Europe, USA and Australia concludes that patient satisfaction is higher for nurse-led clinics compared to traditional physician-led clinics⁹. Studies show that nurse-led clinics redirect the focus of consultation to a patient-centered focus rather than a traditional treatment-focused approach¹⁸⁻²⁰. A systematic review of medical-based nurse-led clinics' successful attributes shows that providing person-centred care is a key component to improving the patients' subjective experience²¹. As described by patients utilising this service, the key characteristics described as essential to the functionality of nurse-led clinics include provision of access to information, sharing of knowledge, and establishing strong therapeutic relationships²².

The integration of nurse-led clinics in oncology care is slowly building momentum on a global scale. In 2017, a scoping review of nurse-led clinics within the past 10 years revealed 22 specific nurse-led cancer clinics, with the majority based in European countries²³. At this point in time, it is unknown exactly how many nurse-led cancer clinics are currently operating. Research, however, does suggest that this number is continually increasing as the demand for specialised healthcare grows in regional and rural areas^{24,25}. To support this development, further research is required to support policy changes and advocate on behalf of patients to obtain the required funding and resources for nurse-led clinics to operate.

Method

Aims

The primary aim of this systematic review was to explore the patient outcomes of nurse-led clinics in the field of head and neck cancer. The secondary aim of this review was to analyse the

distribution and structure of current nurse-led clinics operating for head and neck cancers.

Design

This systematic review was structured using the Pickering framework^{26,27} for systematic literature reviews. The Pickering framework uses a 15-step methodology to search for relevant literature, create a database of findings, and analyse data in a comprehensive and methodical way²⁷. To determine suitable literature for review, Covidence was used to screen and select articles whereby the decisions were blinded between authors²⁸. This process followed two screening steps. Firstly, abstract screening for eligibility and appropriate inclusion criteria. Secondly, full text screening was used to determine final eligibility for all articles. Reports were excluded if they did not fit the inclusion criteria.

Search methods

Boolean used for searching databases is as follows: (nurse-led OR nurse OR nurse managed) AND (head cancer OR neck cancer or oropharyngeal cancer OR head and neck cancer) AND (clinic OR follow-up OR ambulatory clinic). This search was then manually refined by excluding: "Nurse practitioner" OR "Rectal cancer" OR "non-head/neck cancers" OR "non-cancer patients".

Inclusion criteria

- Full text available in English.
- Nurse-led (advanced practice nurse) intervention.
- Study published between 2011–2021.
- Discussion of head and neck cancers (including oropharyngeal cancer).

Exclusion criteria

- Case study reports of patient experience without nursing intervention.
- Use of multidisciplinary team INCLUDING advanced practice nurse.
- Focus not on head and neck cancers.
- Outcome focusing on nurse/clinician experience rather than patient experience.

Search outcomes

A primary search of databases (MEDLINE, Scopus, PsychINFO, Cochrane and CINAHL) yielded 134 results. From this, 22 duplicate records were removed, and 22 records were marked as ineligible by automation tools. The two authors screened for inclusion using the Covidence website. Initial records were excluded using the abstract and then further full text screening identified the final studies.

Data abstraction

The data was downloaded from the studies and saved in an excel spread sheet under the following headings: title, author (year), country, study design, sample and variables reviewed. The Pickering framework was used to complete the review process. Data from the studies were converted into categorical domains and studies were graded as 0 or 1 to provide binary data of the study aspects.

Quality appraisal

The selected studies were appraised using the Mixed Methods Appraisal Tool (MMAT) to identify strength of the research process²⁹. The MMAT approach gives studies a numerical score from 1–5 based on the category of study methodology.

Results

Overview of literature

Of the 13 articles³⁰⁻⁴² included for analysis, seven were cohort studies, four were observation-based and five were randomised control trials. The analysis identified that 12 of the nurse-led clinics were outpatients, and four were based on the generalised

role of an advanced practice nurse. Geographically, only one study was based in Australia, with the majority based in either Europe (7) or the USA (8). Key findings obtained from each study are highlighted in Table 1. When identifying the age of participants, only eight studies detailed specifics with an overall mean age of 62.48 years. Sample sizes ranged from 1–449. Not all studies included the length of the study; however, the average was 9.7 months (n=10) with study lengths ranging from 4 months to 4 years.

Quality appraisal

All studies were appraised using the MMAT²⁹. For the six studies classified as qualitative, the MMAT critique reflected a large variation in quality; interpretation of results and coherence between data sources was identified as a key domain that was not met during quality appraisal. When critiquing the two randomised control trial studies, the main areas of concern related to the domains of assessor blinding, and adherence to protocols. The main area of concern for the five non-randomised studies was that of adjustment for confounding factors. Lastly, for the mixed-methods study, appraisal found inconsistencies

Table 1. Summary of studies included for systematic review

Title	Study design and length	Mean age / sample size	Clinic structure	Data collection	Key findings
Balusik (2014)³⁰ • USA					
Management of dysphagia in patients with head and neck cancer	Case study	Mean = 65 years (n=1)	Advanced practice nurse 1:1 tailored care	Interviews (quality of life)	This case study explores a single patient experience with an advanced practice nurse. In this situation, the nurse made referrals to appropriate multidisciplinary team members, including speech therapy, dietetics and physiotherapy.
Collie et al. (2014)³¹ • Canada					
Qualitative evaluation of care plans for Canadian breast and head and neck cancer survivors	Descriptive qualitative	Mean = 55 years (n=21)	Survivorship education 2 weeks after treatment completed	Personal interviews, measurement of experience of education (quality of life)	Evaluation of survivorship care plans. Patients reported positive emotional impacts from the care plans but expressed concern about communicating this information to physicians.
da Silva Martins et al. (2018)³² • Netherlands					
Nursing consultation in the head and neck cancer radiotherapy: a cost-health utility relationship analysis	Mixed method (5 months)	Mean = 64 years (n=10)	Nurse-led consultation and assessment for referral to multidisciplinary team	University of Washington Quality of Life questionnaire (UW-QOL)	Utilisation of a nurse-led follow up clinic was helpful in enhancing quality of life. It was found that greater utilisation occurred when adverse events occurred to patients within the study.
de Leeuw et al. (2013)³³ • Netherlands					
Nurse-led follow-up care for head and neck cancer patients: a quasi-experimental prospective trial	Quasi-experimental (12 months)	Mean = 59 years (n=160)	Six 30-minute consultations bimonthly 12 months after treatment. Physical and psychological screening and educational advice	Health-related Quality of Life questionnaire (HR-QOL) at 6 and 12 months	By comparing to conventional physician-led follow up, it was found that nurse-led follow up for head and neck cancers resulted in greater improvement in health-related quality of life.

Title	Study design and length	Mean age / sample size	Clinic structure	Data collection	Key findings
de Leeuw et al. (2014)³⁴ • Netherlands					
Nurse-patient communication in follow-up consultations after head and neck cancer treatment	Descriptive qualitative (7 months)	Patients and partners mean = 58 years (n=10)	Six 30-minute consultations bimonthly 12 months after treatment. Physical and psychological screening and educational advice	Observational videos of clinic visits analysed for nurses' ability to identify patient and family cues, enabling assessment and tailored information	Evaluation of communication methods used between nurse and patient during follow-up visits for head and neck cancer. It was found that adequate response to patient concerns was observed through emotional cues and distancing behaviours.
Duman-Lubberding et al. (2017)³⁵ • Netherlands					
Durable usage of patient-reported outcome measures in clinical practice to monitor health-related quality of life in head and neck cancer patients	Mixed methods (6 months)	Mean = 63 years (n=449)	Nurse-led consultations (mean time 10 minutes to discuss patient concerns)	Health-related Quality of Life questionnaire (HR-QOL)	Nursing consultation topics and use of service. Topics discussed were symptom management and anxiety, and that patients valued the nurses' time, knowledge and listening skills.
Ohlstein et al. (2015)³⁶ • USA					
Initial experience of a patient navigational model for head and neck cancer	Retrospective observational (4 years)	Mean = 63 years (n=93)	Nurse navigator consultation to establish care within 2 days after diagnosis	Time from diagnosis to treatment initiation	A patient-centric navigation program was formed where a nurse reviews a patient following diagnosis and arranges to schedule additional tests and biopsies if needed. Following this review, all results are collated and presented to a multidisciplinary team for review and treatment recommendations.
Spellman, Kanatas & Ong (2018)³⁷ • England					
Early experience of a nurse-led clinic in a tertiary centre	Case report (time unknown)	Mean unknown (n=104)	Nurse-led consultations with organisation of appropriate referrals	Suitability for nurse-led clinic	Determined the suitability of a nurse-led clinic for 'fast-track' referral. This study determined that 62% of patients would be suitable for this intervention.
Terzo et al. (2017)³⁸ • USA					
Reducing unplanned admissions	Observational (12 months)	Mean = 59 years (n=97)	Weekly symptom management clinic	Rate of visits or unplanned admissions to hospital/emergency department. Compliance with treatment	Implementation of a nurse-led symptom clinic for head and neck cancers treated with radiotherapy resulted in a marginal reduction of unplanned hospital and emergency department presentations.
Turner et al. (2019)³⁹ • Australia					
The ENCHANCES study: a randomised control trial of nurse-led survivorship intervention for patients treated for head and neck cancer	Randomised control trial (6 months)	Mean = 60 years (n=109)	Nurse consultation with patients in face-to-face interview (up to 60 minutes) to develop individualised care plan	Health-related Quality of Life questionnaire (HR-QOL) Hospital Anxiety and Depression Scale (HADS) Functional Assessment of Cancer Therapy Head and Neck (FACT-H&N)	Nurse-led intervention of cancer survivorship plan was insufficient to improve overall quality of life compared to usual care.
van der Meullen et al. (2013)⁴⁰ • Netherlands					
1-year effect of a nurse-led psychosocial intervention on depressive symptoms in patients with head and neck cancer	Randomised control trial (1 year)	Mean = 60.4 years (n=205)	Nurse-led counseling sessions using manual assessment and tailored information with six 60-minute sessions for each patient	EORTC QOL-H&N37 Centre for Epidemiologic Studies-Depression (CES-D)	Nurse-led psychosocial intervention for depressive symptoms resulted in greater improvement of emotional functioning compared to usual care group – 40% completion of all sessions.

Title	Study design and length	Mean age / sample size	Clinic structure	Data collection	Key findings
Wells et al. (2008)⁴¹ • Scotland					
A study to evaluate nurse-led on-treatment review for patients undergoing radiotherapy for head and neck cancer	Mixed methods observational (7 months)	Mean = 64 years (n=20)	Nurse-led review using check list. Personal follow-up and management of complications	EORTC QOL-C30 EORTC QOL-H&N37	When compared to traditional physician-led follow-up, nurse-led follow-up resulted in improved nutritional and oral management. However, emotional functioning was greater in the physician-led follow-up group.
Westman et al. (2019)⁴² • Sweden					
Patient-reported perceptions of care after the introduction of a new advanced nursing role in Sweden	Cross-sectional cohort (2 years)	70% >65 years (n=395)	Clinical nurse consultant assisted with transition between services and access to information on-call	EORTC QOL-C30 EORTC QOL-H&N37	Introduction of advanced cancer nurse role resulted in patient-reported improvements in access to care, information needs and individualised care plans.

between qualitative and quantitative results and issues relating to coherence for each methodology utilised.

Variables measured

Most studies focused on the quality of life from the patient perspective (n=13). The other areas of participant evaluation focused on the patients' perspective of function assessment (n=4), mood and emotional functioning (n=4), health information needs (n=3) and access to care (n=3). Finally, two studies focused on the amount of hospital re-admissions, and one study focused on patients' overall satisfaction with the clinic.

Measurement of variables

There was a range of variables used to measure quality of life. Of these, the most common were the validated scales Health-related Quality of Life questionnaire (HR-QOL) and the EORTC QOL-H&N37. The standard HR-QOL is also known as the RAND-36 and measures individual responses across the domains of physical functioning, role limitations caused by physical health problems, role limitations caused by emotional problems, social functioning, emotional well-being, energy/fatigue, pain and general health perceptions⁴³. The EORTC QOL-H&N37 is a scale specific to head and neck cancers and is often used to measure the effect of psychological interventions⁴⁴. Overall, the questionnaires used within each article reviewed were standardised and appropriate. However, since there were different measurements used for each study, a meta-analysis of the combined effect of nurse-led clinics for head and neck cancer patients is unable to be performed.

Patient outcomes

Some of the studies included in this review directly compared conventional physician-led follow-up to nurse-led follow-up for head and neck cancers^{33,41}, while others focused on the nurse-led component without comparison^{30,32,35,37,38,40}. When exploring the domain of an advanced practice nurse³⁶, it was found that this intervention improved patient-reported access to care and information needs⁴². Furthermore, another study focused on the

communication used during nursing consultations, and found an adequate response to patient concerns was observed through emotional cues and distancing behaviors³⁴. Other studies focused on the implementation of survivorship care plans^{31,39}; however, it was reported that this implementation alone was insufficient to improve overall quality of life³⁹.

Discussion

The analysis of the studies highlighted a range of both the quality and variables explored. The mean age of combined participants included for this review (63 years old) reflects the higher end of the average age of diagnosis for head and neck cancers between 50–64 years⁴⁵. The current review highlighted that there has been a lack of clinical research to substantiate the benefits and barriers of nurse-led clinics. However, as delivery of care in cancer has changed, there has not been significant research to identify the changes to patient care outcomes⁴⁶. The participant numbers in the reviewed studies reduced the ability to critique the ability of nurse-led clinics to be generalised and used in different geographic areas and cultural diversities⁴⁷. The recruitment and sample information were not clearly presented in included studies; however, all except one study recruited participants from a pool of clinic patients. Recruitment via clinic participation is helpful for studies as the patient demographic is known and information that may be required to study is often already present within the clinic database. However, it does reduce the ability to translate the findings to other geographic areas and cultural differences⁴⁸.

The primary focus in the studies was measuring the changes in quality of life from the patient perspective. Overall, most studies reported an increase in patient-reported quality of life with the intervention of a nurse-led consultation. This supports the previous findings in which nurse-led clinics redirect the focus of consultation to a patient-centered focus rather than the traditional treatment-focused approach^{18–20}. One theory of why nurse-led clinics increase quality of life is that nurses are well prepared at identifying signs and symptoms of distress and being

able to provide coordinated holistic care to improve symptom management and satisfy information needs⁹. Within this review, a similar response is reflected in the study by de Leeuw et al. which reports that during nurse-led consultation, adequate response to patient concerns was observed through emotional cues and distancing behaviors. Further reviews in general nurse-led oncology management suggest that improvements in quality of life are attributable to comprehensive care, psychological and/or social support, health information and individualised consultation⁴⁹.

Emphasis on patient satisfaction

In the area of oncology care, patient satisfaction is shown to be an important contributing factor to the overall improvement in quality of life⁵⁰. It has been suggested that patient satisfaction levels can affect health-related behaviours, compliance with treatment, and motivation to seek care, all of which in turn can aid to increased quality of life⁵⁰. One study by Loiselle et al. examined the domain of emotional support with the context of nurse-led models of care in general oncology patients. It was hypothesised that nurses provide enhanced emotional support by encouraging patients to express their emotions while simultaneously addressing these patient concerns⁵¹.

Context within the Australian environment

As outlined in the Australian Cancer Council *Optimal care pathway for people with head and neck cancer guidelines*, ongoing access to specialist nursing “is important for managing the physical, psychological, and social/practical needs that may arise with head and neck cancer treatment”⁵². Currently in Australia, there are few services that offer highly specialised head and neck cancer care. In Victoria, the Peter Mac Cancer Service offers nurse coordination services for both medical/radiation and surgical head and neck oncology⁵³. In New South Wales, the Chris O'Brien Lifehouse operates a nurse-led rapid access assessment clinic, alongside many other consultant-led and multidisciplinary-led teams⁵⁴. These are a few select examples of successful nurse-led services operating in the current Australian environment.

Limitations

The inclusion/exclusion criteria for this review allowed for studies which had nurse-led clinics in the outpatient setting and those within the hospital and inpatient contexts. It is important to note that while these both utilise the services of an advanced practice nursing role, the overall aims of the service were different. Often with an inpatient service, the main goal is to facilitate a smooth and efficient admission that ends with discharge, whereas the directive in outpatient settings is often an ongoing and flexible process. However, by considering the aspects of these services that contribute to success, the key indicator of patient quality of life is of the upmost importance, regardless of the setting. Further research may be considered by further refining inclusion and exclusion criteria to focus only on outpatient services. However, this may result in less literature available for review.

Conclusion

Nurse-led clinics to support and follow-up persons with head and neck cancer allow for person-centred care. The current studies highlighted the benefits of nurse-led clinics to improve the quality of life of persons with head and neck cancer. All, 13 studies showed an increase in patient-reported quality of life. It has been hypothesised that nurse-led clinics achieved this increased quality of life by redirecting the focus of consultation to the current and specific requirements from a patient-centred focus. These findings may have importance regarding future policy developments, including further implementation of similar clinics in areas without such a service. However, further research may be required to study the financial and resource availability for the utilisation of nurse-led clinics in the future.

Conflict of interest

The authors declare no conflicts of interest.

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