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Cancer nursing research priorities: A rapid review

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ABSTRACT

Purpose: Identifying cancer nursing research priorities is central to influencing the direction of cancer care research. The aim of this rapid review was to explore research priorities identified by oncology nurses for cancer care delivery between 2019 and 2022.

Methods: The Preferred Reporting Items for Systematic Reviews and Meta-Analysis informed the design of the rapid review. MEDLINE, CINAHL, PUBMED, Web of Science, and Cochrane databases were searched for studies published between December 1st, 2018, and September 30th, 2022. This timeframe was chosen to account for the latest relevant evidence synthesis, as well as changes in cancer care necessitated by the COVID-19 pandemic. The Quality Assessment of Diverse Studies tool was used to appraise quality.

Results: Four studies met the inclusion criteria. Many of the research priorities identified were influenced by the COVID-19 pandemic. The top cancer nursing research priority identified was the role of technology in improving patient and caregiver symptoms and health outcomes. Other most prevalent research priorities were focused on symptom management, culturally sensitive palliative and psychosocial care, early/integrated palliative care, financial toxicity, modifiable risk factors related to social determinants of health, public and patient involvement in research, and oncology nurses' well-being and scope of practice.

Conclusion: The findings indicate a need to steer a strategic programme of cancer nursing research towards digitalisation in cancer care to meet the current needs of people living with cancer and their caregivers. However, cancer nurses' burnout, staff shortages and disparities in specialist education will hinder the implementation of certain models of care.

1. Introduction

Generalist and specialist nurses are drivers of quality in cancer care, including reducing the burden of cancer, enhancing outcomes and contributing to society's health status. Nurses in cancer care are called to respond to a wealth of clinical and socioeconomic challenges, most recently the COVID-19 pandemic. Evidence-based practice and decision-making are paramount to align efforts to real-world issues in cancer care and nurses cannot be excluded. Nurse-led interventions contribute to high-quality person-centred care across the cancer continuum (Charalambous et al., 2018). To maintain this relevance it is essential that contemporary research priorities are identified within the timeframe

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2018–2022 which heralded a changing landscape of care delivery due to COVID-19.

Attention has been given by several international nursing organisations to the latest relevant evidence synthesis published in 2018. Since then, the experience of the COVID-19 pandemic has brought with it a need for reconsideration of several cancer care practices, inclusive of nursing care. As such, we sought to scope the relevant literature for the most up-to-date publications of research priorities for cancer nursing/care delivery to reflect the current state of affairs across the world.

Vigorous efforts by healthcare providers, educators, and governments to educate people about cancer and introduce risk-reducing strategies have not decreased the cancer burden (Fernández-Ortega and los Ríos de la Serna, 2022) . The burden of cancer incidence and mortality continues to rapidly increase due to factors such as an ageing population, tobacco use and obesity (Soerjomataram and Bray, 2021; Solary et al., 2022; Sung et al., 2021).

People living with a cancer diagnosis need the care of educated cancer nurses during treatment and in survivorship (Watson et al., 2021; Young et al., 2020). In addition, educated oncology nurses provide a person and family approach to cancer care (Hobbs et al., 2015). Furthermore, cancer nurses need to be up-to-date on current evidence and highly skilled in order to meet the challenges of continual developments in cancer care (Bradford et al., 2022; Challinor et al., 2020). However, because cancer care is highly complex and challenging, cancer nurses are at risk of burnout (Challinor et al., 2020). Another major concern is the shortage of cancer nurses worldwide, an issue compounded by COVID-19 (Challinor et al., 2020; Kovner, 2022), which must be addressed with an urgent global nursing workforce plan (Falatah, 2021; Buchan et al., 2022).

Identifying cancer nurses' research priorities increases the chances that findings will be implemented into practice and therefore more efficient use of limited resources (Barnieh et al., 2015). Research priorities for cancer nursing have been given attention by international nursing organisations for almost 50 years (O'Mara, 2015). A frontrunner in this has been the Oncology Nursing Society (ONS) in the US, a group that regularly updates its research priorities (Jones et al., 2021; Zanville et al., 2021). Other nursing organisations publishing research priorities include the European Oncology Nursing Society (EONS) (Browne et al., 2002), the United Kingdom Oncology Nursing Society (UKONS) (Cox et al., 2017), the Royal College of Nursing (UK) Haematology and bone marrow transplant forum (Grundy and Ghazi, 2009), and the Cancer Nurses Society of Australia (CNSA) (Bradford et al., 2022). The world health organisation (WHO) Europe is distinct from the US, Australia and the UK in terms of nursing research priorities; there are disparities in educational opportunities, specialist nursing roles and differences in language, and workforce challenges make priority setting within this region more complex (Campbell et al., 2017, 2020; Kelly et al., 2020). However, this review will provide a basis for priority setting for cancer nursing research across Europe in the aftermath of the COVID-19 pandemic.

2. Aims

The aims of this rapid review were to.

1. Synthesise international research priorities for cancer nursing research published after December 1st' 2018
2. Explore trends in nursing research priorities for cancer care delivery due to the impact of COVID-19.

3. Methods

Rapid reviews aim to respond to a specific need in a timely manner, allowing the production of evidence with effective management of resources (Hamel et al., 2021). The purpose of this rapid review was to inform a research prioritisation process undertaken by the European Oncology Nurses Society (EONS), a project which commenced in September 2022 with an exploration of oncology nurses' five research priorities attending the EONS conference in Paris.

A two-month time limit was set for this rapid review to inform a Delphi study with European oncology nurses to gain consensus on research priorities. It is advised that rapid reviews are conducted in less than 8 weeks (Schünemann and Moja, 2015).

The review protocol was registered with Open Science Framework (https://osf.io/r5yx3/). This rapid review followed the reporting guidelines for the Preferred Reporting Items for Systematic Reviews and Meta-Analysis guidelines (Page et al., 2021). (Supplement file 1).

3.1. Eligibility criteria

Inclusion criteria: Papers were considered eligible if 1. they included nurses working in cancer care (clinical or research); 2. focused on research priorities on cancer care delivery; 3. focused on nursing research priorities; and 4. were published in English between December 1st' 2018 and September 30th' 2022. This restricted time frame was chosen because there is a recent systematic review of cancer nursing research priorities in which the search strategy included papers published up to November 30th' 2018 (Cadorin et al., 2020). Publications in the form of literature reviews, protocols, book chapters, theses, editorials, or conference abstracts without a full paper were excluded.

3.2. Search strategy

A search strategy developed by an information specialist subject librarian was guided by combining subject headings and keywords for the concepts 'research priorities', 'oncology nursing' and 'cancer care' (Table 1). MEDLINE, CINAHL, PUBMED, Web of Science, and Cochrane databases were searched. Searching a limited number of databases is recommended when undertaking a rapid review (Garritty et al., 2021). The search was conducted in October 2022.

3.3. Study selection

The search results were downloaded to EndNote and duplicates were removed before uploading into Rayyan (Ouzzani et al., 2016). Using the eligibility criteria, blind screening of the title and abstracts was

Table 1
Search strategy (Medline).

1	Research Activities.mp. or Research/
2	Research Priorities.mp.
3	Research Priority.mp.1702
4	Research Activity.mp.2574
5	Health Priority.mp. or Health Priorities/
6	Health Priorities.mp.
7	1 or 2 or 3 or 4 or 5 or 6
8	Nursing Personnel.mp. or Nurses/
9	Nurse.mp.
10	Nursing.mp. or Nursing/
11	Oncology Nursing.mp. or Oncology Nursing/
12	Cancer Nursing.mp.
13	Oncologic Nursing.mp.
14	Oncological Nursing.mp.
15	Nursing societies.mp. or Societies, Nursing/
16	Nurses' priorities.mp.
17	Nurses' perceptions.mp.
18	8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17
19	Cancer Survivor.mp. or Cancer Survivors/
20	Cancer Care.mp.
21	oncology patient.mp.
22	Cancer Patient.mp.
23	Cancer Research.mp.
24	19 or 20 or 21 or 22 or 23
25	7 and 18 and 24
26	limit 25 to yr = "2018 -Current"

undertaken by two reviewers (MD & NE) and conflicts were resolved by discussion with a third reviewer (GB). Full-text screening was undertaken independently by two reviewers (MD & GB).

3.4. Data extraction and analysis

Data extraction of the included studies was undertaken by one reviewer (MD) and checked by a second reviewer (GB). Data extracted from the studies included oncology nursing organisations, study design, methods, and research priorities mentioned. Narrative synthesis guided analysis. One reviewer (MD) coded the research priorities into themes and these were checked by another reviewer (GB).

3.5. Quality appraisal

It is recommended that quality appraisal is undertaken in a rapid review and multi-method appraisal tools should be used (Moons et al., 2021). Appraisal of the methodological quality of the included studies was undertaken by one reviewer (MD) guided by the Quality Assessment of Diverse Studies (QuADS) tool (Harrison et al., 2021). The QuADS outlines 13 criteria used to evaluate the quality of multi-method studies included in systematic reviews (Harrison et al., 2021) and is a revision of an earlier quality assessment tool (Sirriyeh et al., 2012). The 13 criteria are not weighted but some criteria may be considered of more importance to a particular review. In addition, there is no cut-off score to differentiate high or low quality (Harrison et al., 2021). The quality appraisal, therefore, was only used to inform the narrative description of the included studies and no overall score for each paper is presented.

4. Results

A total of 74 papers were retrieved. When duplicates were removed, the title and abstracts of 50 papers were screened, and 15 full-text papers were assessed for eligibility. Four studies met the inclusion criteria (Fig. 1). Three of the four studies were undertaken in the USA by the Oncology Nursing Society (Jones et al., 2021; Von Ah et al., 2019; Zanville et al., 2021). The fourth study was undertaken by the Cancer Nursing Society of Australia (Bradford et al., 2022). In line with each study's aim of research prioritising, all studies included consultation with stakeholders. Three studies used iterative multi-method approaches to achieve consensus (Jones et al., 2021; Von Ah et al., 2019; Zanville et al., 2021). Bradford et al. (2022) utilised a three-round Delphi-survey. Jones et al. (2021) provided an explicit discussion of critical race theory as its theoretical underpinning to identify research priorities related to racism, inclusivity and health equity in cancer care. Zanville et al.'s study (2021) was underpinned by a need to determine research priorities in response to the evolving COVID-19 pandemic.

There was a large variation in the description of sampling across the four studies. Only Bradford et al. (2022) provided extensive details sampling and response rates. However, Jones et al. (2021) explained that a response rate could not be determined because their survey was disseminated using a multi-use URL and the number of survey recipients

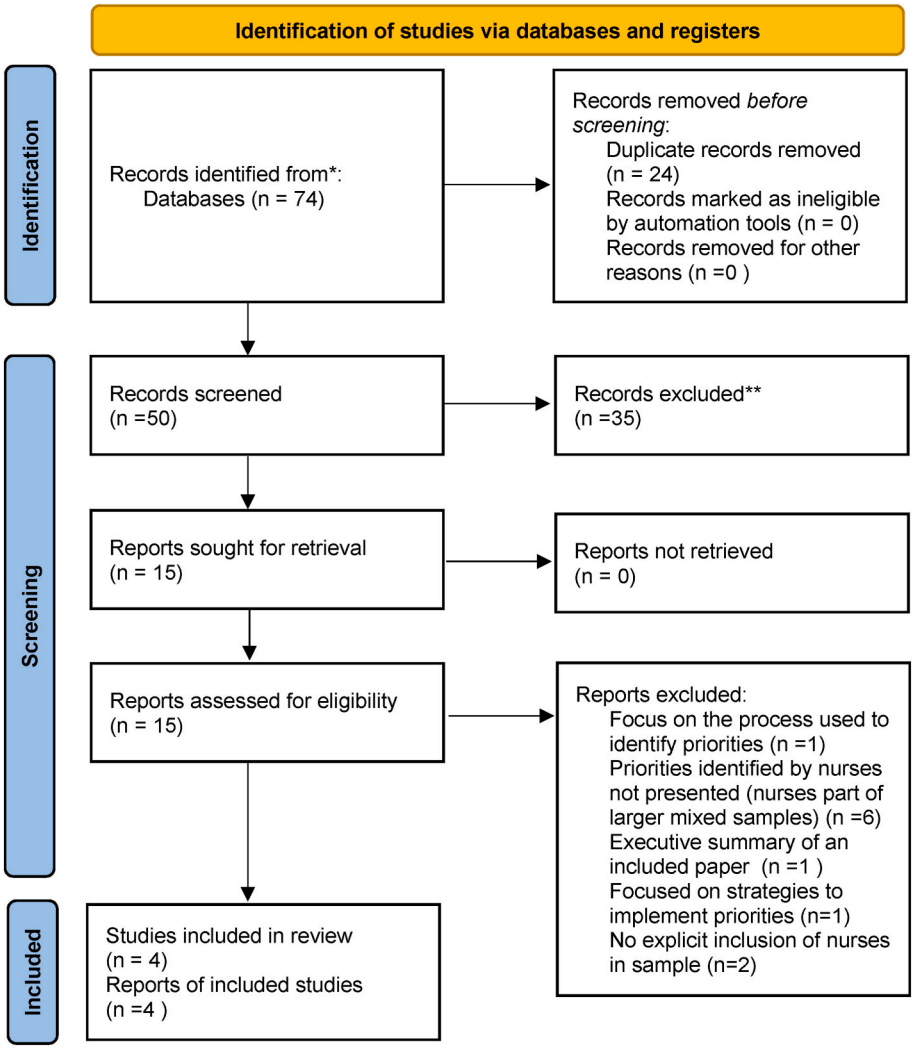


Fig. 1. PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only
*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.*From:* Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021; 372:n71. https://doi.org/10.1136/bmj.n71, For more information, visit: http://www.prisma-statement.org/.

was unknown. In addition, electronic surveys circulated to nurses in diverse locations and settings were used in the other two studies, therefore limiting the reporting of response rates (Von Ah et al., 2019; Zanville et al., 2021) (Table 2).

Analysis of the research priorities across the included studies identified 53 priorities under six themes. 1. Patient experiences and outcomes; 2. Symptom management 3. Supportive care; 4. Models of care; 5. Inclusiveness and health disparities, and 6. Nursing workforce and professional development (Table 3).

4.1. Patient experiences and outcomes

The theme of 'patient experiences and outcomes' included a focus on patient-reported outcomes measures specific to those receiving immunotherapy and chimeric antigen receptor (CAR) T cell therapy and their combinations (Von Ah et al., 2019), caregivers' readiness and capacity for providing serious illness care in the home with COVID-19 (Zanville et al., 2021), and wellbeing among very ill adults with co-morbidities (Von Ah et al., 2019). One priority dominated, this being the role of technology in improving patient and caregiver symptoms and health outcomes, identified in three studies (Bradford et al., 2022; Von Ah et al., 2019; Zanville et al., 2021).

4.2. Symptom management

Managing individual symptoms and symptom clusters was a priority identified in two studies (Bradford et al., 2022; Von Ah et al., 2019). Another property was symptom issues in people with cancer who have COVID-19 (Zanville et al., 2021). Symptom management for immune-related adverse events (irAEs) and variables affecting responses to immune checkpoint inhibitors (ICPI) was also identified in one study (Von Ah et al., 2019).

4.3. Supportive care

A broad range of priorities was identified in this theme with most

Table 2
Study characteristics.

Author(s), Year, Country	Setting	Study Design	Approaches used to determine priorities	Participants	Oncology Nursing Research Priority themes
Bradford et al., (2022) Australia	Members of the Cancer Nurses Society Australia (CNSA)	Consensus surveys with 351 respondents based on the principles of the Delphi Method.	Cancer Nurses Society Australia (CNSA) research committee reviewed 3 rounds of the survey & agreed on a final endorsement.	All past or current attendees of the CNSA 2019 Congress (255 respondents) (Round 1). CNSA members (86 respondents). (Round 2) CNSA members (10 respondents) (Round 3)	• Patient experiences & outcomes • symptom management • Palliative care & psychosocial oncology • Health disparities • Nursing workforce & professional development
Jones et al., (2021) USA	Co-ordinated by Oncology Nursing Society (ONS)	A multi-method consensus-building approach adopted by a rapid response research team (RRRT) guided by critical race theory (CRT) to specifically identify research priorities related to racism, inclusivity and health equity in cancer care.	Potential research priorities were identified following a rapid review of the literature and circulated via a multi-use URL anonymous electronic survey.	Nurse researchers from across the USA, representatives from funding agencies, and ONS membership. 35 respondents, ranging in age from 30 to >69; 90% female, 68% White, 20% Black, 3% Asian, and 9% Indian.	• Inclusiveness • Health disparities
Von Ah et al., (2019) USA	Co-ordinated by Oncology Nursing Society (ONS)	Multimethod, iterative consensus-building approach by members of ONS Research Agenda Project Team	Step 1: Targeted surveys & Interviews with ONS members (those with research expertise), in addition to key stakeholders from funding agencies. Step 2: Results from step 1 reviewed along with relevant literature and research priorities from other organisations and funding agencies. Step 3: Iterative process of draft development, followed by focus groups & town hall meetings with ONS members at the annual ONS Congress Step 4: ONS members feedback reviewed by an expert panel.	ONS members. Sample size not provided	• Patient experiences & outcomes • symptom management • Palliative care & psychosocial oncology • Inclusiveness • Health disparities
Zanville et al., (2021) USA	Co-ordinated by Oncology Nursing Society (ONS)	Multimethod, iterative consensus-building approach by a team of researchers tasked by ONS (building on the research priorities identified in Von Ah et al., 2019, in response to COVID-19)	Step 1: Rapid review of the literature; Step 2: Consultation with experts/ stakeholders & review of priorities from other funding agencies, public health & cancer focused organisations.	The sample size of consultation groups not provided	• Patient experiences & outcomes • symptom management • Palliative care & psychosocial oncology • Models of care • Inclusiveness • Health disparities • Nursing workforce & professional development

Table 3
Cancer Nursing Research Priorities mapping across included studies.

THEME 1: PATIENT EXPERIENCES AND OUTCOMES	BRADFORD	JONES	VAN AH	ZANVILLE
Patient Education	X			
Patient Outcomes	X			
Role of technology, including telehealth in improving patient & caregiver symptoms & health outcomes	X		X	X
Improving patient & caregiver health-related quality of life (HRQoL), satisfaction with care & use of healthcare resources			X	
Patient Reported Outcome (PRO) tools (immunotherapy)			X	
Effects of symptoms on well-being, outcomes, HRQoL & treatment decision-making among very ill adults, in particular with co-morbidities			X	
Caregiver readiness & capacity for providing serious illness care in the home with COVID-19				X
THEME 2: SYMPTOM MANAGEMENT				
Managing individual symptoms and symptom clusters	X		X	
Pain	X			
Monitoring, managing & supportive care interventions with immune-related adverse events (irAEs)			X	
Identify patient variables affecting responses to immune checkpoint inhibitors (ICPI)			X	
Identify patients & survivors at higher risk with higher symptom burden			X	
Create biosignatures (e.g. phenotypic & molecular characteristics) of common symptoms in patients & survivors			X	
Identity characteristics distinguishing COVID-19 symptoms from symptoms of cancer, cancer treatment & treatment-related toxicities				X
Managing symptoms in patients with cancer who have COVID-19				X
THEME 3: SUPPORTIVE CARE	BRADFORD	JONES	VAN AH	ZANVILLE
Develop, test & evaluate interventions to improve two-way communication & shared decision-making		X		
Develop & test interventions for culturally sensitive palliative care & psychosocial oncology care			X	X
Determine effects of early/ integrated Palliative Care on patient & carer outcomes (e.g., symptoms, HRQoL, psychological wellbeing, readmission to hospital).	X		X	
Evaluate interventions targeting financial toxicity associated with cancer treatment	X		X	
Determine the effects of COVID-19 on palliative & supportive care services for patients & caregivers & develop responsive interventions				X
Evaluate interventions to decrease loneliness & increase social functioning among patients with cancer who have COVID-19				X
Develop & test decision tools to help patients & caregivers assess the risks and benefits of pursuing cancer care during COVID-19				X
Determine care and support needs for patients with a dual diagnosis of COVID-19 & cancer				X
Explore the experiences of caregivers caring for patients with a dual diagnosis of COVID-19 & cancer				X
THEME 4: MODELS OF CARE				
Evaluate nurse-led services	X			
Develop and evaluate new models to reduce the risk of COVID-19 exposure & improve access				X
Determine the ability of existing support service models to meet holistic treatment co-ordination, & basic needs during COVID-19				X
Establish and evaluate clinical practice guidelines to advocate for patients with serious illness & their families				X
THEME 5: INCLUSIVENESS & HEALTH DISPARITIES	BRADFORD	JONES	VAN AH	ZANVILLE
Include public & patient involvement (PPI) in the design, testing, evaluation & dissemination of research		X		X
Access to services	X			
Underpin studies with critical race theory		X		
Test and use of screening measures to assess Social Determinants of Health		X		
Develop and test interventions targeting modifiable risk factors related to social determinants of health (e.g. obesity, physical inactivity, diet, tobacco)		X	X	
Develop and test interventions targeting health disparities related to immunizations for malignancy associated with HPV & Hepatitis B			X	
Explore the impact of social determinants of health (physical, social & economic) on cancer outcomes			X	
Develop and test interventions to increase the participation of marginal & vulnerable populations in clinical trials			X	
Explore the effect of COVID-19 on cancer care & health outcomes among underrepresented racial groups				X
Identify the impact of social determinants of health (e.g. discrimination, experienced				X

(continued on next page)

Table 3 (*continued*)

THEME 1: PATIENT EXPERIENCES AND OUTCOMES	BRADFORD	JONES	VAN AH	ZANVILLE
racism, multigenerational housing, pollution, transportation access, insurance) affecting COVID-19 morbidity & mortality in underrepresented patients with cancer				
Explore the experiences of underrepresented patients, caregivers & families related to cancer & COVID-19.				X
Develop and evaluate community informed & culturally responsive interventions to address disparities in COVID-19 prevention & treatment & access to cancer care				X
Develop systematic monitoring approaches to include underrepresented groups in cancer and COVID-19 research				X
Examine barriers to accessing cancer care during COVID-19 (e.g. social distress) & develop and test interventions to reduce these barriers				X
THEME 6: NURSING WORKFORCE & PROFESSIONAL DEVELOPMENT	**BRADFORD**	**JONES**	**VAN AH**	**ZANVILLE**
Explore well-being and burnout among oncology nurses and develop short and long-term support interventions	X			X
Currency of practice/education	X			
Describe and evaluate the effects of the changing scope of practice, such as oncology-focused advanced practice roles on patient outcomes.	X			X
Professional Recognition	X			
Safety and Quality	X			
Explore factors related to COVID-19 (e.g., changing staffing policies, staffing shortages, personal protective equipment shortages, changing workflows, staff redeployment) that have and continue to affect the oncology nursing workforce and develop interventions to address the effects on frontline oncology nursing staff				X
Develop and evaluate strategies to optimize the use of personal protective equipment safely and effectively by oncology nurses in various care settings.				X
Evaluate the effectiveness of distance-based and hybrid learning strategies as an adjunct to on-site clinical training for nurses and students				
Evaluate the impact of COVID-19 on nursing student training and clinical/research doctorate training (e.g., restrictions, delays, and modifications in training quality), and evaluate implications for the oncology nursing workforce.				X
Identify and evaluate the consequences of the shift to virtual meetings on professional development and continuing education for oncology nurses.				X
Identify and evaluate the consequences of institutional restrictions on the work of oncology nurse researchers and the advancement of oncology nursing research				X

focused on COVID-19 issues and highlighted in only one study (Zanville et al., 2021). Three priorities were identified in two studies, i.e. development and testing of interventions for culturally sensitive palliative care and psychosocial care (Von Ah et al., 2019; Zanville et al., 2021); determining the effects of early/integrated palliative care (Bradford et al., 2022; Von Ah et al., 2019), and early interventions targeting financial toxicity associated with cancer treatment (Bradford et al., 2022; Von Ah et al., 2019).

4.4. Models of care

This theme had the fewest priorities when compared with the other five themes. Three priorities focused on responses to COVID-19 (Zanville et al., 2021), and one highlighted the need to evaluate nurse-led services (Bradford et al., 2022).

4.5. Inclusiveness and health disparities

This theme comprised the greatest number of priorities. We could identify twelve priorities related to this theme in one study, six of which focused on COVID-19 issues (Zanville et al., 2021). One of the most prevalent priorities in this theme was the need to develop and test interventions targeting modifiable risk factors related to social determinants of health (Jones et al., 2021; Von Ah et al., 2019).

4.6. Nursing workforce and professional development

Six of the eleven priorities in this theme were specifically COVID-19 related and identified in one study, for instance, the need to identify and evaluate the consequence of virtual meetings on professional development and continuing education for oncology nurses (Zanville et al., 2021). Two priorities were identified in two studies; the need to explore well-being and burnout among oncology nurses and develop support interventions (Bradford et al., 2022; Zanville et al., 2021) and the importance of describing and evaluating the effects of oncology nurses' changing scope of practice (such as advanced practice roles) on patient outcomes (Bradford et al., 2022; Zanville et al., 2021).

5. Discussion

This rapid review of cancer nursing research priorities is timely as people affected by and working in the specialist area of cancer grapple with the effects of COVID-19 on care services, the impact of a declining nursing workforce, the growing cancer population and financial constraints across healthcare systems. The findings of this rapid review advance the oncology nursing research priorities identified in a recent systematic review which included studies undertaken between 2010 and 2018 (Cadorin et al., 2020). While some research priorities are similar to those identified by Cadorin et al. (2020) (i.e. symptom management, access to care, and nurses' burnout), our findings reveal a major shift in research priorities for oncology nurses in the past four years. This change is likely due to a number of reasons, most notably the impact of

COVID-19 on cancer care delivery.

The most prevalent research priority identified in this review was the role of technology (including telehealth) in improving patient and caregiver symptoms and health outcomes, a finding not reported in Cadorin et al.'s (2020) review. This finding is unsurprising in view of the exponential increase in the use of technology following the onset of COVID-19. Numerous studies have identified telehealth as an acceptable form of consultation in cancer care (Arem et al., 2022; Caruso et al., 2022; Dieperink et al., 2021; Izadi-Najafabadi et al., 2022; Smith et al., 2022; Teicher et al., 2022). However, some patients have reported being less satisfied when they perceived face-to-face consultations as more appropriate to their needs (Arthur et al., 2022; Dowling et al., 2022; Dieperink et al., 2021; Drury et al., 2021; Izadi-Najafabadi et al., 2022; Smith et al., 2022; White et al., 2022). In addition, some patients have expressed the view that their diagnosis was delayed due to the use of telehealth and healthcare professionals acknowledge the limitations of telehealth in terms of conducting physical examinations and showing test results to patients (Smith et al., 2022). Both clinicians and patients agree that telehealth is not suitable for all patients and is most appropriate in follow-up care where discussion on emotionally difficult topics is not anticipated (Dieperink et al., 2021; Dowling et al., 2022; Drury et al., 2021; Smith et al., 2022; White et al., 2022).

Increasing interest among oncology nurses in intervention-based research on the use of telehealth in cancer care is evident. For instance, a recent phase 3 trial (CAPRI) reported that a nurse-navigator led digital remote monitoring program may improve outcomes and experience among patients with metastatic cancer (Mir et al., 2022). In addition, nurse-led telehealth trials in follow-up ovarian cancer (Cohen et al., 2022) and cancer-related fatigue (Ladwa et al., 2022) are planned. Furthermore, in a systematic review of telehealth-based cancer rehabilitation interventions on disability, 35% (n = 24) of the included studies were delivered by nurses (Brick et al., 2022). However, in their review, nurses' scope of practice was unclear in terms of implementing an intervention versus setting and advancing the plan of care, highlighting the need for future research to report differences in outcomes based on discipline (Brick et al., 2022). A need for nurse-led telehealth interventions for cancer symptom management is also a recommendation in another recent systematic review (Kwok et al., 2022). Other research recommendations include exploring oncology nurses' barriers and enabling factors in telehealth use (Brunelli et al., 2021). There is also the need to study diverse patient populations, agree on appropriate measures of quality of life and physical functioning and ensure that implementation science methods are included to meet the challenges of translating evidence into practice (Brick et al., 2022). In addition, the majority of studies on telehealth-based cancer rehabilitation are focused on breast cancer and post-primary treatment interventions, with limited research available on the effectiveness of telehealth in the pre-treatment, during-treatment and end-of-life care phases (Brick et al., 2022). The importance of including diverse patient populations in future research studies is further emphasised by the findings of a Canadian survey of people with cancer (n = 4733) which highlighted those participants with lower education levels found it difficult to use telehealth and had a less positive experience when compared to more advantaged study participants (Izadi-Najafabadi et al., 2022). However, it will be important to address the disparities in access to oncology nursing education programmes in Europe (Kelly et al., 2020) and beyond (Galassi and Challinor 2015; Oti et al., 2021) in order to progress research focused on digital health models of care.

Another key priority identified in this review is including public and patient involvement (PPI) in all stages of the research process. This reflects broader priorities for health systems research internationally. Forming partnerships with community members to identify and implement interventions focused on barriers to care is critical (Jones et al., 2021). Building long-term reciprocal relationships between patients and researchers are central to the success of PPI in cancer research (Ní Shé et al., 2021). However, while PPI in cancer research is long-established (Stewart et al., 2011), there is a lack of diversity in PPI groups (Fitzgibbon et al., 2020). PPI members tend to be female, highly educated, from ethnic majority groups and are often already immersed in patient and community organisations (Pii et al., 2019). Moreover, PPI involvement in cancer research is mostly in the early stages only (Dawson et al., 2018; Pii et al., 2019). A key priority for researchers should be involving a diverse range of people with cancer in all stages of the research process, from design, testing, evaluation, and dissemination. Attention to inclusivity in cancer care is imperative with particular emphasis and effort to engage hard to reach groups (Drury et al., 2022a; MASCC, 2020). Furthermore, using community-based participatory research within a PPI framework is an ideal basis for developing interventions targeting modifiable risk factors related to social determinants of health, another research priority identified in this review. Participatory research offers an approach to developing and testing interventions for improving modifiable cancer risk factors (Thomas et al., 2022).

Another priority for oncology nurses identified in this review was the need to evaluate interventions targeting financial toxicity associated with cancer treatment. Financial toxicity has a huge impact on patients' quality of life, especially those with advanced cancer (Delgado-Guay et al., 2015). Cancer health professionals believe that addressing patients' financial concerns are integral to cancer care, however, there is a lack of clarity on their role (Gordon et al., 2022). Suggested early interventions include timely referral to social work colleagues and financial experts for practical guidance and provision of emotional support (de la Cruz and Delgado-Guay, 2021).

Unsurprisingly, research focused on individual symptoms and symptom clusters was another priority identified in our review. Predictive medicine is increasingly gaining attention in symptom management (Cole et al., 2022; El Alaoui et al., 2022), and non-pharmacological interventions have shown their effectiveness in improving symptom cluster experience (Khamboon and Pakanta 2021; So et al., 2020). However, researchers have focused mostly on symptom cluster severity, QoL and patients' physical functioning with other outcomes such as patient morbidity and self-care competence not addressed (So et al., 2020). In the context of European strategic priorities, basic research to understand and address the nature of unmet needs associated with cancer, the early predictors of QoL, patient-reported outcomes and unmet needs are critical to support the development of interventions which are responsive to the needs of cancer patients (European Union, 2021). A shift in focus from the prevalence of symptoms and symptom clusters to understanding symptom impact, and target interventions that support effective outcome measurement, self-management and early supportive care are necessary (Diez de los Rios de la Serna et al., 2022; Drury et al., 2022b; 2022c).

A focus on culturally sensitive palliative and supportive care interventions and determining the effects of early/integrated palliative care on patient and caregiver outcomes were also identified research priorities. This need is particularly evident in haematological malignancies where late referral to palliative care is more common compared with solid tumours (Gemmell et al., 2022; Shaulov et al., 2022) and advanced head and neck cancer where a high prevalence in interventions continues into the last month of life (Mayland et al., 2021). Areas for research attention in haematological malignancies include early/integrated palliative care to manage severe symptoms associated with multiple myeloma, following treatment with emerging therapies such as chimeric antigen T-cell therapy (CAR-T) and their combinations (Potenza et al., 2022), and around the time of haematopoietic stem cell transplant (Gemmell et al., 2022; Potenza et al., 2022). It is already known that consultations conducted by palliative care-trained nurses before admission for a haematopoietic stem cell transplant and subsequently on a monthly basis can reduce levels of anxiety in some patients (Loggers et al., 2016). More research on the effects of early/integrated nurse consultation on patients' and carers' well-being around the time of HSCT is needed. In the context of palliative care interventions in

advanced head and neck cancer, there is an urgent need to undertake prospective mixed-methods multi-centre studies, as well as in-depth qualitative exploration exploring patients' experiences and identify their needs for holistic care (Mayland et al., 2021).

In our review, attention to carers' experiences and outcomes is evident under the themes of patient experiences and outcomes, supportive care and inclusiveness and health disparities. This attention on carers is on a greater scale than previously reported (Cadorin et al., 2020). The burden and distress associated with caregiving in cancer are well documented and research evaluating accessible support services for carers is needed (Junkins et al., 2020). Evidence suggests the effectiveness of interventions in improving cancer patient caregivers' well-being (Sak-Dankosky et al., 2022). However, future studies should focus on interventions specific to caregivers' needs at different stages of the disease trajectory and how positive effects can be maintained over time (Sak-Dankosky et al., 2022). In addition, it is important to undertake qualitative longitudinal dyad studies exploring both patients' and caregivers' experiences over the cancer trajectory (Cormican and Dowling, 2022).

Two priorities were most prominent under the theme of 'nursing workforce and professional development'. The first focuses on reducing nurses' burnout and has been a research priority for many years (Cadorin et al., 2020); however, our review highlights that this issue has escalated to a position of urgency due to the effects of COVID-19. The psychological distress experienced by oncology nurses during COVID-19 is well documented (Eche et al., 2022; Sniderman et al., 2022). In addition, there is an urgent need to understand the specific experiences and needs of young and early-career cancer nurses to support retention and wellbeing of the nursing workforce over the coming decade (EONS YCN, 2022; Gribben & Semple, 2021a;b). Interventions to address nurses' burnout include mindfulness programmes and physical activity and professional development activities (Murphy et al., 2022; Sulosaari et al., 2022). Evidence from ten experimental studies supports the positive impact of mindfulness-based intervention (MBI) programmes on nurses' psychological well-being (Sulosaari et al., 2022). However, longitudinal studies are needed to determine the cost-effectiveness of MBI programmes, their impact over time and other activities associated with nurses' well-being (Sulosaari et al., 2022). Physical activity can also help manage nurses' stress and burnout. A recent pilot longitudinal walking intervention with a group of oncology nurses resulted in a decrease in stress scores and low emotional exhaustion in burnout scores and a 29% increase in the average total week step count (Murphy et al., 2022).

The second most prominent priority under the theme of 'nursing workforce and professional development' is the need to describe and evaluate the effects of oncology nurses' changing scope of practice, such as advanced practice roles, on patient outcomes. Evidence from 17 trials of advanced practice nurse-led clinics highlights the improvement in cancer patients' physical symptoms, emotional well-being and QoL (Molassiotis et al., 2021). However, the limited range of agreed outcomes is restricting efforts to demonstrate the impact of advanced nursing practice roles in oncology and more extensive agreement on advanced practice nursing outcomes for future trials is urgently needed (Molassiotis et al., 2021).

5.1. Limitations

This rapid review has a few limitations. Only papers in English were included. Three studies report priorities identified by nurses in the US and one from Australia. Therefore some caution should be applied to the applicability of these priorities in Europe, South America, Asia and Africa where there are diverse models of healthcare delivery within a mixture of low, middle and high-income countries. The ranking of research priorities may be very different internationally and requires further investigation.

6. Conclusion

Our findings will facilitate steering a strategic programme of oncology nursing research to meet the current needs of people living with cancer, their caregivers and the oncology nursing workforce. The most prevalent research priority identified in this review was the role of technology (including telehealth) in improving patient and caregiver symptoms and health outcomes. This change is likely due to a number of reasons, most notably the impact of COVID-19 on cancer care delivery. While this priority is situated in the theme of patient experience and outcomes, it cross-cuts the other themes identified, in particular, models of care and addressing inclusiveness and health disparities. However, current disparities in oncology nurses' access to specialist education internationally will hinder research focused on digital health models of care.

CRediT authorship contribution statement

Maura Dowling: Conceptualization, Methodology, Investigation, Formal analysis, Writing – review & editing. **Nikolaos Efstathiou:** Conceptualization, Methodology, Investigation, Writing – review & editing. **Drury Amanda:** Conceptualization, Methodology, Writing – review & editing. **Semple Cherith:** Conceptualization, Methodology, Writing – review & editing. **Paz Fernández-Ortega:** Conceptualization, Methodology, Writing – review & editing. **Karin Brochstedt Dieperink:** Conceptualization, Methodology, Writing – review & editing. **Eva Pape:** Conceptualization, Methodology, Writing – review & editing. **Grigorios Kotronoulas:** Conceptualization, Methodology, Writing – review & editing. **Susana Miguel:** Conceptualization, Methodology, Writing – review & editing. **Sara Colomer-Lahiguera:** Conceptualization, Methodology, Writing – review & editing. **Gülcan Bağçivan:** Conceptualization, Methodology, Investigation, Writing – review & editing.

Declaration of competing interest

None declared.

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