



Research Paper

Consensus research priorities in geriatric oncology: A Delphi study

Amanda Drury^{a,*}, Aoife O'Brien^b, Sarah Sheehan^a, Liz O'Connell^c, Sarah Cosgrave^d, Michelle Hannan^e, Caroline Smyth^f, Kristen Fessele^g, Mary Harkin^h, Lisa Rogers^b

^a School of Nursing and Midwifery, Trinity College Dublin, 24 D'Olier Street, Dublin 2, Ireland.

^b School of Nursing, Midwifery & Health Systems, University College Dublin, Belfield, Dublin 4, Ireland.

^c Tallaght University Hospital, Dublin, Ireland.

^d Caritas Day Hospital, St Vincent's University Hospital, Merrion Rd, Dublin 4, Ireland.

^e Department of Medical Oncology, University Hospital Waterford, Dunmore Road, Waterford, Ireland.

^f Community Intervention Team, Anam Cara, St Canices Road, Glasnevin, Dublin 11, Ireland.

^g Office of Nursing Research, Memorial Sloan Kettering Cancer Centre, New York, USA.

^h Age and Opportunity, Dublin, Ireland.

ARTICLE INFO

Keywords:

Geriatric oncology
Cancer survivorship
Research priorities
Delphi study
Older adults

ABSTRACT

Introduction: Research priority-setting activities that meaningfully involve older adults living with or after cancer remain limited, particularly outside North America. We aimed to establish consensus on key priorities for future research in geriatric oncology survivorship.

Materials and Methods: We used the modified Delphi methodology with 60 experts by experience and profession, including older adults living with or after cancer, family members/caregivers, healthcare professionals, advocacy professionals, and academics/researchers. Fifty-five research priorities generated via qualitative interviews with older adults living with and after cancer were assessed across four Delphi rounds. Consensus was defined as $\geq 80\%$ agreement using a 9-point Likert scale in early rounds and dichotomous voting in final rounds.

Results: In the pooled analysis of the final consensus rounds, 37 research priorities achieved consensus for inclusion. The highest-ranked priorities focused on the development of treatment options for older adults (98%), decision-making (96%), raising healthcare professionals' awareness of potential cancer symptoms in older adults that require investigation (96%), clinical programs addressing rehabilitation (96%), and management of multimorbidity in cancer (96%) and outcomes related to cancer (96%) and frailty (96%).

Discussion: This study provides a consensus-based framework of research priorities for geriatric oncology survivorship, grounded in the perspectives of older adults and key stakeholders. While treatment development remains a central priority, the findings also highlight the importance of research addressing decision-making, integrated care, and rehabilitation to better meet the needs of older adults living with and after cancer.

1. Introduction

The intersection of ageing and cancer presents distinct challenges. Older adults aged over 65 represent the majority of people diagnosed with cancer, yet their needs and experiences remain underrepresented in cancer research [1,2]. Ageing is frequently accompanied by multimorbidity, functional decline, and changing social supports, increasing the complexity of cancer care and underscoring the need for a nuanced understanding of older adults' experiences [3–7].

Geriatric oncology has evolved in recent decades, with growing emphasis on comprehensive geriatric assessment and person-centred

care within cancer services [8]. Alongside advances in professional education and specialist geriatric oncology services, there is increasing recognition that survivorship care for older adults must address the interaction between cancer, ageing, multimorbidity, functional decline, and social support [9,10]. Research priority setting has an important role in directing limited research resources towards questions of greatest relevance to patients, clinicians, services, and policy [11–13].

Despite growing recognition of patient and public involvement (PPI), older adults with cancer are often underrepresented in priority-setting initiatives, which are frequently driven by literature reviews or consultations with professional stakeholders [14–19]. This is important

* Corresponding author at: School of Nursing and Midwifery, Trinity College Dublin, 24 D'Olier Street, Dublin 2, Ireland.

E-mail address: drurya1@tcd.ie (A. Drury).

<https://doi.org/10.1016/j.jgo.2026.103056>

Received 14 April 2026; Received in revised form 8 June 2026; Accepted 30 June 2026

Available online 10 July 2026

1879-4068/© 2026 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

because research agendas developed without meaningful input from older adults may not reflect the outcomes and care priorities that matter most to them [12,13]. In geriatric oncology survivorship, this gap is particularly significant because older adults' priorities may extend beyond disease control to include treatment burden, functional status, multimorbidity, frailty, information needs, continuity of care, rehabilitation, family support, and quality of life [3–7]. Establishing consensus on research priorities is therefore necessary to guide future studies towards questions that are clinically relevant, person-centred, and responsive to the lived realities of older adults with cancer. This study builds on prior qualitative work with older adult cancer survivors [20] and aims to establish consensus on key areas for future research in geriatric oncology survivorship.

2. Methods

2.1. Study design

This study adopted a modified Delphi technique, and aimed to engage a diverse range of stakeholders with expertise or lived experience relevant to cancer in older adulthood. Previous consultation undertaken as part of this research programme highlighted older adults' preferences for flexible modes of engagement in research activities [21]. Older adults who expressed interest in participating in this research study indicated a preference for a single, cross-sectional opportunity to contribute via a paper-based or online questionnaire. In this study, the modified Delphi approach involved three iterative Delphi rounds with an expert panel, followed by a fourth, cross-sectional round to enable participation by older adults who preferred a single opportunity to contribute via paper-based or online questionnaire. This adaptation was informed by previous consultation undertaken as part of this research programme, which highlighted older adults' preferences for flexible modes of engagement in research activities [21]. The fourth round presented participants with the consensus results from Round 3 and allowed them to indicate whether each priority should be retained in the final list. This approach is described as modified because it deviated from traditional Delphi methodology through the inclusion of an additional cross-sectional consultation round [22]. Ethical approval was obtained from the University Research Ethics Committees (Reference: LS-21–31-Drury) and the Research Ethics Committee of the participating hospital (Reference: JREC-256 Drury).

2.2. Sample

Participants were recruited as experts by experience and profession, reflecting the range of stakeholders involved in or affected by cancer in older adulthood. Eligible participants included: (i) older adults aged 65 years or older living with or after cancer; (ii) family members or caregivers of older adults living with or after cancer; (iii) researchers, healthcare professionals, and advocacy professionals involved in care or research relating to older adults living with or after cancer; and (iv) able to read, write, and understand English. No exclusion criteria were applied based on geographical location.

2.3. Recruitment

Participants for the initial Delphi rounds were recruited through advertisements disseminated via social media platforms and organisational newsletters, with distribution facilitated by academic and advocacy organisations involved in cancer and ageing research. Interested individuals were invited to review a participant information leaflet and provide informed consent. To maintain confidentiality while enabling linkage of responses across rounds, participants created a unique study identifier. Recruitment to the final cross-sectional round followed a similar approach, with additional purposive recruitment of older adults living with cancer via a regional cancer centre and cancer advocacy

organisations in the Republic of Ireland. As this round was anonymous, no personal identifiers were collected. Participants in this round were presented with a summary of the consensus results from the preceding round.

2.4. Questionnaire development

The Delphi questionnaire was developed based on the results of a prior qualitative study exploring older adults' perceptions of priorities for research in cancer and haematological malignancies [20,21]. This work identified 50 research priorities across seven thematic areas, which formed the basis of the initial questionnaire (Table 1). The research team, comprising stakeholders with expertise in oncology, haematology, geriatric oncology, gerontology, advocacy, academia, and lived experience, contributed to drafting and refining the questionnaire. Minor revisions were made to enhance clarity and comprehensibility based on stakeholder feedback.

2.5. Data collection

Each Delphi questionnaire included two sections. The first captured participant characteristics, including personal or professional expertise, cancer diagnosis (where applicable), age group, and gender. The second section asked participants to rate the importance of research priorities across the seven thematic areas presented in Table 1. In the first round, two open-text fields allowed participants to suggest additional priorities or provide feedback. Suggestions were reviewed and incorporated into subsequent rounds where appropriate, with clarifications provided alongside existing items where necessary. In Rounds 1 and 2, priorities were rated using a 9-point Likert scale (1–3: not important; 4–6: unsure; 7–9: important). Consensus was defined as more than 80% of participants rating an item as important (7–9), while consensus disagreement was defined as more than 80% rating an item as not important (1–3). In Rounds 2 and 3, participants were shown the level of agreement achieved in the previous round. In Rounds 3 and 4, participants indicated whether each priority should be retained in the final list using a yes/no response.

2.6. Data analysis

Descriptive statistics were used to summarise participant characteristics and levels of consensus for each research priority. A priority was considered to have reached consensus if it met the predefined threshold in the relevant round. Open-text responses were analysed and grouped using principles of content analysis [23]. Item-level results are presented in Table 3, with thematic summaries provided in Appendix 1.

3. Results

3.1. Sample characteristics

Across the four rounds of the Delphi study, a total of 60 individuals participated in one or more rounds. Twenty-nine participants contributed to at least one of Rounds 1–3, with 21 completing all three rounds. Participants in Rounds 1–3 were predominantly resident in Ireland (40.0–45.5%) and the United Kingdom (29.2–40.0%). Across these rounds, there was similar proportional representation of older adults living with or after cancer (28.0–31.8%) and healthcare professionals (33.3–36.4%), alongside representation from academics and advocacy professionals. All participants who identified as an older adult living with or after cancer in Rounds 1–3 were aged between 65 and 74 years.

Round 4 included 31 participants and was conducted as a cross-sectional consultation to facilitate broader participation, particularly among older adults who preferred single-round involvement. All Round 4 participants were resident in Ireland. The sample included older adults living with or after cancer (41.9%), healthcare professionals (29.0%),

Table 1

Thematic areas derived from the analysis of older adults' views on priorities for future cancer research (adapted from Drury et al. (2023) [20]).

1. Early Investigation and Recognition of Potential Cancer Symptoms
2. Research About Cancer Treatment
3. Supporting Assessment and Management of Co-Morbidities
4. Unmet Needs of People Living with and After Cancer
5. Impact of COVID-19 on People Living or After Cancer and on Cancer Care Services
6. The Needs of Family Members, Friends and Communities Supporting Older Adults with Cancer
7. Patient/Person and Public Involvement in Research

and family members or caregivers of older adults affected by cancer (25.8%). Compared with earlier rounds, Round 4 included a greater proportion of older adults aged 75–84 years (32.2%). Detailed demographic characteristics by round are presented in Table 2.

3.2. Delphi results

A summary of the number of research priorities achieving consensus within each thematic area across Delphi rounds is presented in Appendix 1. Item-level results for Rounds 1–4 are presented in Table 3.

3.2.1. Round 1 (n = 25)

In Round 1, consensus was achieved for 20 of 50 research priorities (40.0%) (Appendix 1). All priorities within the thematic area research about cancer treatment reached consensus for inclusion. Highest levels of consensus was observed within the themes assessment and management of comorbid health conditions (5 of 7 items, 71.4%) and unmet needs of people living with and after cancer (6 of 11 items, 54.5%). One priority reached consensus within each of the themes recognising the signs and symptoms of cancer and the impact of cancer on family members, caregivers, and friends. No priorities reached consensus for inclusion or exclusion within the themes impact of COVID-19 on people living with or after cancer and cancer care services or research priorities

Table 2

Sample Characteristics.

Variable	Response	Round 1 (n = 25)		Round 2 (n = 22)		Round 3 (n = 24)		Round 4 (n = 31)	
		n	%	n	%	n	%	n	%
Country	Ireland	10	40.0%	10	45.5%	10	41.7%	31	100.0%
	United Kingdom	10	40.0%	8	36.4%	7	29.2%	0	0.0%
	Turkey	2	8.0%	2	9.1%	4	16.7%	0	0.0%
	United States of America	3	12.0%	2	9.1%	3	12.5%	0	0.0%
Are you a:	A person over the age of 65 who has had a diagnosis of cancer at any time	7	28.0%	7	31.8%	7	29.2%	13	41.9%
	A healthcare professional involved in the care or support of older adults living with or beyond cancer	9	36.0%	8	36.4%	8	33.3%	9	29.0%
	A family member or caregiver of someone who is an older adult living with or beyond cancer	3	12.0%	2	9.1%	4	16.7%	8	25.8%
	An academic or researcher with experience in the field of cancer research involving older adults living with or beyond cancer	5	20.0%	3	13.6%	3	12.5%	0	0.0%
	An advocacy professional involved in the care or support of older adults living with or beyond cancer	1	4.0%	2	9.1%	2	8.3%	1	3.2%
Please state what type of cancer you have been diagnosed with.	Breast Cancer	6	85.7%	6	85.7%	6	85.7%	0	0.0%
	Multiple Myeloma	1	14.3%	1	14.3%	1	14.3%	2	15.4%
	Lymphoma	0	0.0%	0	0.0%	0	0.0%	5	38.5%
	Leukaemia	0	0.0%	0	0.0%	0	0.0%	2	15.4%
	Not disclosed	0	0.0%	0	0.0%	0	0.0%	4	30.8%
Please select your age group	25–29	0	0.0%	0	0.0%	0	0.0%	2	6.5%
	30–34	0	0.0%	0	0.0%	0	0.0%	1	3.2%
	35–39	5	20.0%	5	22.7%	4	16.7%	3	9.7%
	40–44	4	16.0%	2	9.1%	2	8.3%	1	3.2%
	45–49	1	4.0%	1	4.5%	1	4.2%	1	3.2%
	50–54	3	12.0%	2	9.1%	2	8.3%	2	6.5%
	55–59	0	0.0%	0	0.0%	0	0.0%	1	3.2%
	60–64	2	8.0%	2	9.1%	3	12.5%	3	9.7%
	65–69	5	20.0%	5	22.7%	7	29.2%	4	12.9%
	70–74	5	20.0%	5	22.7%	5	20.8%	2	6.5%
	75–79	0	0.0%	0	0.0%	0	0.0%	7	22.6%
	80–84	0	0.0%	0	0.0%	0	0.0%	3	9.7%
	Not disclosed	0	0.0%	0	0.0%	0	0.0%	1	3.2%
Gender	Female	24	96.0%	20	90.9%	22	91.7%	22	71.0%
	Male	1	4.0%	2	9.1%	2	8.3%	9	29.0%
Profession	Physiotherapist	4	44.4%	2	25.0%	1	12.5%	0	0.0%
	Occupational Therapist	1	11.1%	1	12.5%	1	12.5%	0	0.0%
	Nurse	4	44.4%	5	62.5%	5	62.5%	6	60.0%
	Physician	0	0.0%	0	0.0%	1	12.5%	3	30.0%
	Dietician	0	0.0%	0	0.0%	0	0.0%	1	10.0%
Treatments worked with	Chemotherapy	6	75.0%	7	87.5%	8	100.0%	10	100.0%
	Radiotherapy	3	37.5%	4	50.0%	5	62.5%	0	0.0%
	Surgery	2	25.0%	4	50.0%	4	50.0%	0	0.0%
	Palliative Care	2	25.0%	0	0.0%	1	12.5%	0	0.0%
How often do you work with older adults?	Daily	8	88.9%	7	87.5%	7	87.5%	9	90.0%
	Weekly	1	11.1%	1	12.5%	1	12.5%	1	10.0%

Table 3

Delphi results Rounds 1–4.

Thematic Area	Research Priorities	Round 1 (n = 25)			Round 2 (n = 24)			Round 3 (n = 24)		Round 4 (n = 31)		Round 3 & 4 (n = 55) ³	
		Agree	Unsure	Disagree	Agree	Unsure	Disagree	Yes	No	Yes	No	Yes	No
Recognising the Signs and Symptoms of Cancer	Projects to enhance public awareness of potential cancer symptoms.	72.0%	28.0%	0.0%	72.7%	27.3%	0.0%	88.0%	12.0%	96.8%	3.2%	93.0%*	7.0%
	Projects to promote awareness among healthcare professionals of potential cancer symptoms requiring investigation (e.g. general practitioners [GPs], nurses, physiotherapists, etc).	84.0%	8.0%	8.0%	81.8%	18.2%	0.0%	92.0%	8.0%	100.0%	0.0%	96.5%*	3.5%
	Research to understand the impact of receiving a cancer diagnosis in an emergency department setting.	76.0%	24.0%	0.0%	77.3%	22.7%	0.0%	80.0%	20.0%	83.9%	16.1%	82.5%*	17.5%
Research About Cancer Treatment	Research to support the development of new treatment options for older adults diagnosed with cancer.	80.0%	16.0%	4.0%	81.8%	18.2%	0.0%	96.0%	4.0%	100.0%	0.0%	98.2%*	1.8%
	Research to understand the effects and outcomes of cancer treatments for older adults.	92.0%	8.0%	0.0%	90.9%	9.1%	0.0%	100.0%	0.0%	93.5%	6.5%	96.4%*	3.6%
	Research to understand older adults' preferences for cancer treatments and their potential side-effects.	92.0%	8.0%	0.0%	100.0%	0.0%	0.0%	96.0%	4.0%	90.3%	9.7%	92.9%*	7.1%
	Projects to support older adults to make informed decisions about cancer treatment and care.	92.0%	8.0%	0.0%	95.5%	0.0%	4.5%	100.0%	0.0%	87.1%	12.9%	92.9%*	7.1%
	Research to understand the role of age, social circumstances and functional status (a person's ability to perform normal daily activities to meet their basic needs and fulfil their roles) in determining the treatment options available to older adults. ¹	84.0%	16.0%	0.0%	100.0%	0.0%	0.0%	100.0%	0.0%	93.5%	6.5%	96.4%*	3.6%
	Research to support the development of programmes to help older adults living with or after cancer to plan for future care needs.	88.0%	12.0%	0.0%	95.5%	4.5%	0.0%	92.0%	8.0%	96.8%	3.2%	94.6%*	5.4%
	Research to understand older adults' preferences for advance care planning (i.e. making decisions about wishes for end of life care and extraordinary measures).	88.0%	12.0%	0.0%	100.0%	0.0%	0.0%	100.0%	0.0%	87.1%	12.9%	92.9%*	7.1%

(continued on next page)

Table 3 (continued)

Thematic Area	Research Priorities	Round 1 (n = 25)			Round 2 (n = 24)			Round 3 (n = 24)		Round 4 (n = 31)		Round 3 & 4 (n = 55) ³	
		Agree	Unsure	Disagree	Agree	Unsure	Disagree	Yes	No	Yes	No	Yes	No
Supporting Assessment and Management of Comorbid Health Conditions	Projects to support older adults living with or after cancer and one or more other health conditions to maintain their quality of life.	84.0%	16.0%	0.0%	90.9%	9.1%	0.0%	96.0%	4.0%	90.3%	9.7%	92.9%*	7.1%
	Projects to develop formal integrated care services to support the management of co-morbidities alongside cancer treatment and follow-up care.	84.0%	16.0%	0.0%	100.0%	0.0%	0.0%	96.0%	4.0%	96.8%	3.2%	96.4%*	3.6%
	Research to understand the issues which hinder and facilitate continuity of care for older adults living with or after cancer.	80.0%	20.0%	0.0%	72.7%	27.3%	0.0%	76.0%	24.0%	90.3%	9.7%	83.9%*	16.1%
	Projects to introduce comprehensive geriatric assessment to cancer care services for older adults living with or after cancer.	72.0%	28.0%	0.0%	81.8%	13.6%	4.5%	80.0%	20.0%	87.1%	12.9%	83.9%*	16.1%
	Projects to enhance access to and availability of specialist oncology services for older adults living with cancer (e.g. geriatric oncology). ²	N/A	N/A	N/A	95.5%	4.5%	0.0%	96.0%	4.0%	90.0%	10.0%	92.7%*	7.3%
	Research to support healthcare professionals' recognition of and assessment of frailty in cancer care services.	84.0%	16.0%	0.0%	86.4%	13.6%	0.0%	88.0%	12.0%	96.8%	3.2%	92.9%*	7.1%
	Projects promoting medication review and reconciliation in cancer care services to reduce risks associated with unnecessary medications.	80.0%	20.0%	0.0%	90.9%	9.1%	0.0%	88.0%	12.0%	87.1%	12.9%	87.5%*	12.5%
	Projects to support older adults living with or after cancer to understand their medications and support optimal and accurate use of medicines associated with cancer treatment.	72.0%	24.0%	4.0%	81.8%	18.2%	0.0%	88.0%	12.0%	83.9%	16.1%	85.7%*	14.3%
	Research to understand the impact of cancer on older adults' daily life (e.g. ability to self-care, ability to drive, ability to walk, ability to work/enjoy hobbies, financial impact of cancer).	72.0%	28.0%	0.0%	85.7%	14.3%	0.0%	91.7%	8.3%	90.0%	10.0%	90.7%*	9.3%
	Research to understand older adults' experiences of	88.0%	12.0%	0.0%	95.2%	4.8%	0.0%	91.7%	8.3%	90.0%	10.0%	90.7%*	9.3%

(continued on next page)

Table 3 (continued)

Thematic Area	Research Priorities	Round 1 (n = 25)			Round 2 (n = 24)			Round 3 (n = 24)		Round 4 (n = 31)		Round 3 & 4 (n = 55) ³	
		Agree	Unsure	Disagree	Agree	Unsure	Disagree	Yes	No	Yes	No	Yes	No
	cancer and treatment-related side-effects and issues that might affect self-management of side-effects.	N/A	N/A	N/A	95.2%	4.8%	0.0%	95.8%	4.2%	90.0%	10.0%	92.6%*	7.4%
	Research to understand the psychological and social impact of cancer diagnosis and treatment on older adults. ²	92.0%	8.0%	0.0%	100.0%	0.0%	0.0%	100.0%	0.0%	93.3%	6.7%	96.3%*	3.7%
	Research to support the development of programmes that help older adults to recover physically, psychologically and socially after cancer treatment.	92.0%	8.0%	0.0%	95.2%	4.8%	0.0%	95.8%	4.2%	96.7%	3.3%	96.3%*	3.7%
	Research to understand the care and support needs of older adults living with or after cancer and frailty.	76.0%	24.0%	0.0%	85.7%	14.3%	0.0%	87.5%	12.5%	86.7%	13.3%	87.0%*	13.0%
	Research to support the development of services to support the management of symptoms related to cancer or cancer treatment that older adults living with or after cancer may experience.	76.0%	24.0%	0.0%	81.0%	19.0%	0.0%	87.5%	12.5%	83.3%	16.7%	85.2%*	14.8%
	Research to understand what might affect an older adults' ability to navigate and access healthcare services.	84.0%	16.0%	0.0%	90.5%	9.5%	0.0%	91.7%	8.3%	80.6%	19.4%	85.5%*	14.5%
	Research to support the development of services to support older adults living with or after cancer to cope with the psychological and social impacts of cancer.	80.0%	20.0%	0.0%	66.7%	33.3%	0.0%	66.7%	33.3%	90.3%	9.7%	80.0%*	20.0%
	Projects to promote awareness and uptake of advocacy services available to people living with and after cancer (e.g. transport to appointments, counselling, cancer support groups).	72.0%	28.0%	0.0%	66.7%	33.3%	0.0%	50.0%	50.0%	80.6%	19.4%	67.3%	32.7%
	Projects to support older adults living with or after cancer to access public health and social welfare benefits.	80.0%	20.0%	0.0%	85.7%	14.3%	0.0%	87.5%	12.5%	90.3%	9.7%	89.1%*	10.9%
	Research to support the development of programmes that help older adults living with or after cancer to access and navigate												

(continued on next page)

Table 3 (continued)

Thematic Area	Research Priorities	Round 1 (n = 25)			Round 2 (n = 24)			Round 3 (n = 24)		Round 4 (n = 31)		Round 3 & 4 (n = 55) ³	
		Agree	Unsure	Disagree	Agree	Unsure	Disagree	Yes	No	Yes	No	Yes	No
Impact of COVID-19 on People Living With or After Cancer and Cancer Care Services	healthcare services to manage symptoms or issues related to cancer.												
	Research to support the development of programmes that enhance the communication of information about cancer diagnosis, treatment, and treatment-related side-effects.	76.0%	24.0%	0.0%	85.7%	14.3%	0.0%	87.5%	12.5%	83.9%	16.1%	85.5%*	14.5%
	Research to explore the characteristics of the healthcare workforce and resources available within oncology services to provide care to older adults living with cancer. ²	N/A	N/A	N/A	85.7%	14.3%	0.0%	75.0%	25.0%	87.1%	12.9%	81.8%*	18.2%
	Research to understand the psychological and social impact of COVID-related public health strategies on people living with or after cancer (i.e. lockdowns, social distancing, vaccinations, use of face masks, etc).	60.0%	36.0%	4.0%	42.9%	47.6%	9.5%	29.2%	70.8%	83.9%	16.1%	60.0%	40.0%
	Research to understand the psychological and social impact of the easing of COVID-related public health measures on people living with or after cancer (i.e. ending of mask requirements, social distancing).	52.0%	44.0%	4.0%	38.1%	52.4%	9.5%	25.0%	75.0%	77.4%	22.6%	54.5%	45.5%
	Research to understand the psychological and social impact of the COVID-19 pandemic on caregivers of people living with or after cancer (e.g. stress, worry, anxiety, depression) ²	N/A	N/A	N/A	66.7%	28.6%	4.8%	45.8%	54.2%	80.6%	19.4%	65.5%	34.5%
	Research to understand the impact of COVID-19 on the investigation, diagnosis and staging of cancer since the start of the pandemic.	72.0%	28.0%	0.0%	71.4%	28.6%	0.0%	66.7%	33.3%	90.3%	9.7%	80.0%*	20.0%
	Research to understand the late effects of COVID-19 experienced by people living with or after cancer.	76.0%	20.0%	4.0%	61.9%	38.1%	0.0%	70.8%	29.2%	83.3%	16.7%	77.8%	22.2%
	Research to understand the psychological impact of cancer on family members,	68.0%	28.0%	4.0%	66.7%	33.3%	0.0%	75.0%	25.0%	90.3%	9.7%	83.6%*	16.4%

(continued on next page)

Table 3 (continued)

Thematic Area	Research Priorities	Round 1 (n = 25)			Round 2 (n = 24)			Round 3 (n = 24)		Round 4 (n = 31)		Round 3 & 4 (n = 55) ³	
		Agree	Unsure	Disagree	Agree	Unsure	Disagree	Yes	No	Yes	No	Yes	No
Caregivers and Friends	members or friends who provide care to people living with or after cancer.	76.0%	20.0%	4.0%	47.6%	52.4%	0.0%	58.3%	41.7%	77.4%	22.6%	69.1%	30.9%
	Research to understand the impact of changes in roles when a family member or friend is diagnosed with cancer.	N/A	N/A	N/A	66.7%	33.3%	0.0%	75.0%	25.0%	83.9%	16.1%	80.0%*	20.0%
	Research to understand the needs of family members or friends who provide support or care to an older person who is diagnosed with cancer. ²	76.0%	24.0%	0.0%	81.0%	19.0%	0.0%	83.3%	16.7%	87.1%	12.9%	85.5%*	14.5%
	Research to understand the experiences of people who are caregivers of people with chronic health conditions, and who are also living with or after a cancer diagnosis of cancer themselves.	80.0%	16.0%	4.0%	90.5%	9.5%	0.0%	95.8%	4.2%	77.4%	22.6%	85.5%*	14.5%
	Research to support the development of programmes providing psychosocial support to caregivers of older adults living with or after cancer.	76.0%	20.0%	4.0%	71.4%	28.6%	0.0%	79.2%	20.8%	83.9%	16.1%	81.8%*	18.2%
	Research to understand the information needs of family members or friends who provide care to an older adult living with or after cancer, related to cancer diagnosis, treatment or follow-up care.	48.0%	40.0%	12.0%	23.8%	57.1%	19.0%	4.2%	95.8%	56.7%	43.3%	33.3%	66.7%
	Research to understand the impact of high-profile stories about cancer experiences on the understanding of cancer among members of the public.	64.0%	24.0%	12.0%	42.9%	52.4%	4.8%	20.8%	79.2%	67.7%	32.3%	47.3%	52.7%
	Research to understand the perceptions of members of the public about the needs of people living with and after cancer.	72.0%	28.0%	0.0%	76.2%	23.8%	0.0%	79.2%	20.8%	90.3%	9.7%	85.5%*	14.5%
	Research to understand the impact of a cancer diagnosis and its treatment on relationships between the person living with or after cancer and their family members.												

(continued on next page)

Table 3 (continued)

Thematic Area	Research Priorities	Round 1 (n = 25)			Round 2 (n = 24)			Round 3 (n = 24)		Round 4 (n = 31)		Round 3 & 4 (n = 55) ³	
		Agree	Unsure	Disagree	Agree	Unsure	Disagree	Yes	No	Yes	No	Yes	No
Research Priorities for Patient and Public Involvement in Research	Projects to promote public awareness of the support needs of people with cancer.	56.0%	40.0%	4.0%	42.9%	57.1%	0.0%	33.3%	66.7%	74.2%	25.8%	56.4%	43.6%
	Research to understand the needs and preferences of older adults for support from community and friends related to their cancer. ¹	60.0%	36.0%	4.0%	52.4%	47.6%	0.0%	41.7%	58.3%	77.4%	22.6%	61.8%	38.2%
	Research to understand older adults' preferences for involvement and engagement in research studies.	60.0%	32.0%	8.0%	47.6%	38.1%	14.3%	41.7%	58.3%	86.2%	13.8%	66.0%	34.0%
	Research to understand the acceptability and accessibility of communication methods used for patient and public involvement in research (e.g. telephone, postal, online methods of communication).	48.0%	48.0%	4.0%	38.1%	47.6%	14.3%	29.2%	70.8%	80.0%	20.0%	57.4%	42.6%
	Projects to promote awareness of opportunities for patient and public involvement in research.	60.0%	36.0%	4.0%	57.1%	33.3%	9.5%	70.8%	29.2%	80.0%	20.0%	75.9%	24.1%
	Projects to promote awareness and understanding of the roles of patient/public representatives for patient and public involvement in research.	52.0%	44.0%	4.0%	33.3%	57.1%	9.5%	25.0%	75.0%	72.4%	27.6%	50.9%	49.1%
	Research to support the development of education programmes to provide basic training in research for people living with or after cancer to prepare for a role as a patient/public representative in research.	44.0%	44.0%	12.0%	28.6%	52.4%	19.0%	16.7%	83.3%	82.8%	17.2%	52.8%	47.2%
	Research to understand the practical needs of people involved in cancer research as a patient/public representative.	44.0%	44.0%	12.0%	33.3%	52.4%	14.3%	20.8%	79.2%	83.3%	16.7%	55.6%	44.4%
	Research to understand the psychological and social impact and needs of people involved in cancer research as a patient/public representative.	52.0%	32.0%	16.0%	38.1%	47.6%	14.3%	25.0%	75.0%	80.0%	20.0%	55.6%	44.4%
	Research to understand the resources needed to	56.0%	28.0%	16.0%	38.1%	52.4%	9.5%	41.7%	58.3%	83.3%	16.7%	64.8%	35.2%

(continued on next page)

Table 3 (continued)

Thematic Area	Research Priorities	Round 1 (n = 25)			Round 2 (n = 24)			Round 3 (n = 24)		Round 4 (n = 31)		Round 3 & 4 (n = 55) ³	
		Agree	Unsure	Disagree	Agree	Unsure	Disagree	Yes	No	Yes	No	Yes	No
	support older adults living with and after cancer to act as patient/public representatives in cancer research.												

¹ Item revised following round 1; ² New item generated following round 1; ³ Pooled responses from rounds 3 and 4; *Items achieving consensus based on Round 3 & 4 results

for patient and public involvement in research.

Nine participants provided open-text comments, generating 25 suggestions relating to new or existing priorities (Appendix 2). Following analysis, two items were revised and five new research priorities were added for subsequent rounds. These addressed access to specialist oncology services, psychological and social impacts of cancer on older adults, oncology workforce capacity, the impact of COVID-19 on caregivers, and the support needs of family members or friends providing care.

3.2.2. Round 2 (n = 22)

Following revisions, Round 2 included 55 research priorities across seven thematic areas. Consensus was achieved for 28 of 55 priorities (50.9%) (Appendix 1). As in Round 1, all priorities within the theme research about cancer treatment reached consensus. Consensus within the theme recognising the signs and symptoms of cancer remained unchanged (33.3%). Increased consensus was observed for priorities related to supporting assessment and management of comorbid health conditions (four items, 87.5%) and unmet needs of people living with and after cancer (six items, 84.6%). No items reached consensus within the themes relating to COVID-19 or patient and public involvement in research.

Five priorities achieved 100.0% consensus in Round 2, focusing on treatment preferences, factors influencing treatment options, advance care planning, integrated care for multimorbidity, and recovery following cancer treatment. The items with the largest increases in consensus compared with Round 1 were factors influencing treatment options and integrated care services. Reduced agreement was observed for seven priorities, primarily within the COVID-19 and patient and public involvement themes (Table 3).

3.2.3. Round 3 (n = 24)

At the conclusion of Round 3, consensus was achieved for 29 of 55 research priorities (52.7%; Table 3; Appendix 1). Full consensus was maintained for items within the research about cancer treatment theme, while high levels of consensus were also sustained for priorities relating to comorbidity management and the impact of cancer on family members, caregivers and friends. Consensus increased substantially for priorities addressing recognition of cancer signs and symptoms, with all items in this theme reaching the consensus threshold.

Eighteen priorities achieved consensus agreement exceeding 90.0% (Table 3). Three priorities retained 100.0% consensus from Round 2, while two priorities demonstrated slightly reduced, but still high, agreement. Reduced agreement compared with Round 2 was observed for priorities within the themes of family impact, unmet needs, and patient and public involvement. Two priorities reached consensus for exclusion in Round 3, relating to the impact of high-profile stories about cancer experiences on the understanding of cancer among members of the public and basic research training for patient/public research representatives (Table 3).

3.2.4. Round 4 (n = 31)

In Round 4, 47 of 55 research priorities (85.5%) achieved consensus

for inclusion (Table 3; Appendix 1). All priorities within the themes research about cancer treatment, supporting assessment and management of comorbid health conditions, unmet needs of people living with and after cancer, and recognising the signs and symptoms of cancer reached consensus. Compared with earlier rounds, additional priorities reached consensus within the themes relating to family and caregiver impact, COVID-19, and patient and public involvement in research.

Nineteen priorities reaching consensus in Round 4 had not achieved consensus in previous rounds (Table 3), with the largest increases observed for priorities within the patient and public involvement, COVID-19, and unmet needs themes. Twenty-two priorities achieved consensus agreement exceeding 90.0%, and two achieved 100.0% consensus; promoting healthcare professionals' awareness of cancer symptoms requiring investigation in older adults, and developing new treatment options for older adults diagnosed with cancer (Table 3). Suggestions made by four participants at the end of Round 4 were incorporated into existing priorities (Appendix 2).

3.2.5. Rounds 3 and 4 subgroup analysis (n = 55)

For final prioritisation, responses from Rounds 3 and 4 were pooled. Overall, 37 of 55 research priorities (67.3%) achieved consensus agreement ($\geq 80.0\%$) and were retained as priorities for future research in geriatric oncology (Table 4; Appendix 1). The highest-ranked priorities were 1) research to support the development of new treatment options for older adults diagnosed with cancer (98.2%); 2) projects to promote awareness among healthcare professionals of potential cancer symptoms requiring investigation (e.g., general practitioners [GPs], nurses, physiotherapists) (96.5%); 3) research to understand the effects and outcomes of cancer treatments for older adults (96.4%); 4) research to understand the role of age, social circumstances, and functional status (a person's ability to perform normal daily activities to meet their basic needs and fulfil their roles) in determining the treatment options available to older adults (96.4%); 5) Projects to develop formal integrated care services to support the management of co-morbidities alongside cancer treatment and follow-up care (96.4%); 6) Research to support the development of programmes that help older adults to recover physically, psychologically, and socially after cancer treatment (96.3%); and 7) research to understand the care and support needs of older adults living with or after cancer and frailty (96.3%).

Subgroup analysis demonstrated that family members/caregivers and advocacy professionals achieved consensus on the highest number of priorities overall (Appendix 3). While 37 priorities reached consensus in the pooled analysis, some priorities did not reach consensus within specific subgroups (Table 4). Participants identifying as older adults living with or after cancer demonstrated lower agreement for prioritising research on psychosocial support services and the impact of COVID-19 on cancer diagnosis and staging. Among family members/caregivers, lower agreement was observed for prioritising comprehensive geriatric assessment within cancer care services. Participants identifying as academics and healthcare professionals demonstrated the greatest divergence from the pooled consensus, particularly for priorities relating to survivorship, family impact, unmet needs, management of comorbidities, and recognition of cancer symptoms in older adults (Appendix 3).

Table 4

Summary of pooled responses from demographic subgroups in Rounds 3 and 4.

Thematic Area	Research Priorities	Older Adults Living with and After Cancer (n = 20)		Caregivers (n = 12)		HCP (n = 17)		Advocacy (n = 3)		Academic (n = 3)		Total (n = 55) ³	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Recognising The Signs and Symptoms of Cancer	Projects to enhance public awareness of potential cancer symptoms.	95.0%	5.0%	100.0%	0.0%	88.2%	11.8%	100.0%	0.0%	66.7%	33.3%	93.0%	7.0%
	Projects to promote awareness among healthcare professionals of potential cancer symptoms requiring investigation (e.g. GP's, nurses, physiotherapists, etc).	100.0%	0.0%	100.0%	0.0%	88.2%	11.8%	100.0%	0.0%	100.0%	0.0%	96.5%	3.5%
	Research to understand the impact of receiving a cancer diagnosis in an emergency department setting.	85.0%	15.0%	91.7%	8.3%	64.7%	35.3%	100.0%	0.0%	100.0%	0.0%	82.5%	17.5%
Research About Cancer Treatment	Research to support the development of new treatment options for older adults diagnosed with cancer.	100.0%	0.0%	100.0%	0.0%	94.1%	5.9%	100.0%	0.0%	100.0%	0.0%	98.2%	1.8%
	Research to understand the effects and outcomes of cancer treatments for older adults.	90.0%	10.0%	100.0%	0.0%	100.0%	0.0%	100.0%	0.0%	100.0%	0.0%	96.4%	3.6%
	Research to understand older adults' preferences for cancer treatments and their potential side-effects.	95.0%	5.0%	100.0%	0.0%	82.4%	17.6%	100.0%	0.0%	100.0%	0.0%	92.9%	7.1%
	Projects to support older adults to make informed decisions about cancer treatment and care.	95.0%	5.0%	100.0%	0.0%	82.4%	17.6%	100.0%	0.0%	100.0%	0.0%	92.9%	7.1%
	Research to understand the role of age, social circumstances, and functional status (a person's ability to perform normal daily activities to meet their basic needs and fulfil their roles) in determining the treatment options available to older adults. ¹	90.0%	10.0%	100.0%	0.0%	100.0%	0.0%	100.0%	0.0%	100.0%	0.0%	96.4%	3.6%
	Research to support the development of programmes to help older adults living with or after cancer to plan for future care needs.	100.0%	0.0%	100.0%	0.0%	82.4%	17.6%	100.0%	0.0%	100.0%	0.0%	94.6%	5.4%
	Research to understand older adults' preferences for advance care planning (i.e. making decisions about wishes for end of life care and extraordinary measures).	85.0%	15.0%	100.0%	0.0%	94.1%	5.9%	100.0%	0.0%	100.0%	0.0%	92.9%	7.1%
	Projects to support older adults living with or after cancer and one or more other health conditions to maintain their quality of life.	90.0%	10.0%	100.0%	0.0%	88.2%	11.8%	100.0%	0.0%	100.0%	0.0%	92.9%	7.1%
Supporting Assessment and Management of Comorbid Health Conditions	Projects to develop formal integrated care services to support the management of co-morbidities alongside cancer	95.0%	5.0%	100.0%	0.0%	94.1%	5.9%	100.0%	0.0%	100.0%	0.0%	96.4%	3.6%

(continued on next page)

Table 4 (continued)

Thematic Area	Research Priorities	Older Adults Living with and After Cancer (n = 20)		Caregivers (n = 12)		HCP (n = 17)		Advocacy (n = 3)		Academic (n = 3)		Total (n = 55) ³	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Unmet Needs of People Living With and After Cancer	treatment and follow-up care.												
	Research to understand the issues which hinder and facilitate continuity of care for older adults living with or after cancer.	90.0%	10.0%	91.7%	8.3%	64.7%	35.3%	100.0%	0.0%	100.0%	0.0%	83.9%	16.1%
	Projects to introduce comprehensive geriatric assessment to cancer care services for older adults living with or after cancer.	90.0%	10.0%	75.0%	25.0%	82.4%	17.6%	100.0%	0.0%	66.7%	33.3%	83.9%	16.1%
	Projects to enhance access to and availability of specialist oncology services for older adults living with cancer (e.g. geriatric oncology). ²	90.0%	10.0%	100.0%	0.0%	88.2%	11.8%	100.0%	0.0%	100.0%	0.0%	92.7%	7.3%
	Research to support healthcare professionals' recognition of and assessment of frailty in cancer care services.	95.0%	5.0%	83.3%	16.7%	94.1%	5.9%	100.0%	0.0%	100.0%	0.0%	92.9%	7.1%
	Projects promoting medication review and reconciliation in cancer care services to reduce risks associated with unnecessary medications.	85.0%	15.0%	91.7%	8.3%	82.4%	17.6%	100.0%	0.0%	100.0%	0.0%	87.5%	12.5%
	Projects to support older adults living with or after cancer to understand their medications and support optimal and accurate use of medicines associated with cancer treatment.	85.0%	15.0%	91.7%	8.3%	76.5%	23.5%	100.0%	0.0%	100.0%	0.0%	85.7%	14.3%
	Research to understand the impact of cancer on older adults' daily life (e.g. ability to self-care, ability to drive, ability to walk, ability to work/enjoy hobbies, financial impact of cancer).	95.0%	5.0%	90.9%	9.1%	82.4%	17.6%	100.0%	0.0%	100.0%	0.0%	90.7%	9.3%
	Research to understand older adults' experiences of cancer and treatment-related side-effects and issues that might affect self-management of side-effects.	85.0%	15.0%	90.9%	9.1%	94.1%	5.9%	100.0%	0.0%	100.0%	0.0%	90.7%	9.3%
	Research to understand the psychological and social impact of cancer diagnosis and treatment on older adults. ²	90.0%	10.0%	100.0%	0.0%	88.2%	11.8%	100.0%	0.0%	100.0%	0.0%	92.6%	7.4%
	Research to support the development of programmes that help older adults to recover physically, psychologically and socially after cancer treatment.	95.0%	5.0%	100.0%	0.0%	94.1%	5.9%	100.0%	0.0%	100.0%	0.0%	96.3%	3.7%
	Research to understand the care and support needs of older adults living with or after cancer and frailty.	95.0%	5.0%	100.0%	0.0%	94.1%	5.9%	100.0%	0.0%	100.0%	0.0%	96.3%	3.7%
	Research to support the development of services to support the management	85.0%	15.0%	90.9%	9.1%	82.4%	17.6%	100.0%	0.0%	100.0%	0.0%	87.0%	13.0%

(continued on next page)

Table 4 (continued)

Thematic Area	Research Priorities	Older Adults Living with and After Cancer (n = 20)		Caregivers (n = 12)		HCP (n = 17)		Advocacy (n = 3)		Academic (n = 3)		Total (n = 55) ³	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
	of symptoms related to cancer or cancer treatment that older adults living with or after cancer may experience.	85.0%	15.0%	90.9%	9.1%	76.5%	23.5%	100.0%	0.0%	100.0%	0.0%	85.2%	14.8%
	Research to understand what might affect an older adults' ability to navigate and access healthcare services.	75.0%	25.0%	91.7%	8.3%	88.2%	11.8%	100.0%	0.0%	100.0%	0.0%	85.5%	14.5%
	Research to support the development of services to support older adults living with or after cancer to cope with the psychological and social impacts of cancer.	85.0%	15.0%	91.7%	8.3%	70.6%	29.4%	100.0%	0.0%	33.3%	66.7%	80.0%	20.0%
	Projects to promote awareness and uptake of advocacy services available to people living with and after cancer (e.g. transport to appointments, counselling, cancer support groups).	75.0%	25.0%	83.3%	16.7%	47.1%	52.9%	100.0%	0.0%	33.3%	66.7%	67.3%	32.7%
	Projects to support older adults living with or after cancer to access public health and social welfare benefits.	95.0%	5.0%	91.7%	8.3%	76.5%	23.5%	100.0%	0.0%	100.0%	0.0%	89.1%	10.9%
	Research to support the development of programmes that help older adults living with or after cancer to access and navigate healthcare services to manage symptoms or issues related to cancer.	85.0%	15.0%	100.0%	0.0%	70.6%	29.4%	100.0%	0.0%	100.0%	0.0%	85.5%	14.5%
	Research to support the development of programmes that enhance the communication of information about cancer diagnosis, treatment, and treatment-related side-effects.	85.0%	15.0%	83.3%	16.7%	70.6%	29.4%	100.0%	0.0%	100.0%	0.0%	81.8%	18.2%
	Research to explore the characteristics of the healthcare workforce and resources available within oncology services to provide care to older adults living with cancer.												
Impact of COVID-19 on People Living With or After Cancer and Cancer Care Services	2												
	Research to understand the psychological and social impact of COVID-related public health strategies on people living with or after cancer (i.e. lockdowns, social distancing, vaccinations, use of face masks, etc).	55.0%	45.0%	75.0%	25.0%	58.8%	41.2%	100.0%	0.0%	0.0%	100.0%	60.0%	40.0%
	Research to understand the psychological and social impact of the easing of COVID-related public health measures on people living with or after cancer	45.0%	55.0%	75.0%	25.0%	52.9%	47.1%	100.0%	0.0%	0.0%	100.0%	54.5%	45.5%

(continued on next page)

Table 4 (continued)

Thematic Area	Research Priorities	Older Adults Living with and After Cancer (n = 20)		Caregivers (n = 12)		HCP (n = 17)		Advocacy (n = 3)		Academic (n = 3)		Total (n = 55) ³	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
The Impact of Cancer on Family Members, Caregivers and Friends	(i.e. ending of mask requirements, social distancing).												
	Research to understand the psychological and social impact of the COVID-19 pandemic on caregivers of people living with or after cancer (e.g. stress, worry, anxiety, depression) ²	55.0%	45.0%	91.7%	8.3%	58.8%	41.2%	100.0%	0.0%	33.3%	66.7%	65.5%	34.5%
	Research to understand the impact of COVID-19 on the investigation, diagnosis and staging of cancer since the start of the pandemic.	75.0%	25.0%	91.7%	8.3%	70.6%	29.4%	100.0%	0.0%	100.0%	0.0%	80.0%	20.0%
	Research to understand the late effects of COVID-19 experienced by people living with or after cancer.	75.0%	25.0%	90.9%	9.1%	64.7%	35.3%	100.0%	0.0%	100.0%	0.0%	77.8%	22.2%
	Research to understand the psychological impact of cancer on family members or friends who provide care to people living with or after cancer.	90.0%	10.0%	91.7%	8.3%	70.6%	29.4%	100.0%	0.0%	66.7%	33.3%	83.6%	16.4%
	Research to understand the impact of changes in roles when a family member or friend is diagnosed with cancer.	65.0%	35.0%	91.7%	8.3%	58.8%	41.2%	100.0%	0.0%	33.3%	66.7%	69.1%	30.9%
	Research to understand the needs of family members or friends who provide support or care to an older person who is diagnosed with cancer. ²	80.0%	20.0%	83.3%	16.7%	76.5%	23.5%	100.0%	0.0%	66.7%	33.3%	80.0%	20.0%
	Research to understand the experiences of people who are caregivers of people with chronic health conditions, and who are also living with or after a cancer diagnosis of cancer themselves.	90.0%	10.0%	100.0%	0.0%	64.7%	35.3%	100.0%	0.0%	100.0%	0.0%	85.5%	14.5%
	Research to support the development of programmes providing psychosocial support to caregivers of older adults living with or after cancer.	85.0%	15.0%	100.0%	0.0%	70.6%	29.4%	100.0%	0.0%	100.0%	0.0%	85.5%	14.5%
	Research to understand the information needs of family members or friends who provide care to an older adult living with or after cancer, related to cancer diagnosis, treatment or follow-up care.	80.0%	20.0%	83.3%	16.7%	82.4%	17.6%	100.0%	0.0%	66.7%	33.3%	81.8%	18.2%
	Research to understand the impact of high-profile stories about cancer experiences on the understanding of cancer among members of the public.	35.0%	65.0%	54.5%	45.5%	23.5%	76.5%	33.3%	66.7%	0.0%	100.0%	33.3%	66.7%
	Research to understand the perceptions of members of the public	35.0%	65.0%	75.0%	25.0%	41.2%	58.8%	100.0%	0.0%	0.0%	100.0%	47.3%	52.7%

(continued on next page)

Table 4 (continued)

Thematic Area	Research Priorities	Older Adults Living with and After Cancer (n = 20)		Caregivers (n = 12)		HCP (n = 17)		Advocacy (n = 3)		Academic (n = 3)		Total (n = 55) ³	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Research Priorities for Patient and Public Involvement in Research	about the needs of people living with and after cancer.												
	Research to understand the impact of a cancer diagnosis and its treatment on relationships between the person living with or after cancer and their family members.	95.0%	5.0%	91.7%	8.3%	64.7%	35.3%	100.0%	0.0%	100.0%	0.0%	85.5%	14.5%
	Projects to promote public awareness of the support needs of people with cancer.	65.0%	35.0%	66.7%	33.3%	47.1%	52.9%	66.7%	33.3%	0.0%	100.0%	56.4%	43.6%
	Research to understand the needs and preferences of older adults for support from community and friends related to their cancer. ¹	60.0%	40.0%	83.3%	16.7%	52.9%	47.1%	100.0%	0.0%	0.0%	100.0%	61.8%	38.2%
	Research to understand older adults' preferences for involvement and engagement in research studies.	68.4%	31.6%	63.6%	36.4%	64.7%	35.3%	100.0%	0.0%	33.3%	66.7%	66.0%	34.0%
	Research to understand the acceptability and accessibility of communication methods used for patient and public involvement in research (e.g. telephone, postal, online methods of communication).	57.9%	42.1%	83.3%	16.7%	47.1%	52.9%	66.7%	33.3%	0.0%	100.0%	57.4%	42.6%
	Projects to promote awareness of opportunities for patient and public involvement in research.	63.2%	36.8%	83.3%	16.7%	82.4%	17.6%	100.0%	0.0%	66.7%	33.3%	75.9%	24.1%
	Projects to promote awareness and understanding of the roles of patient/public representatives for patient and public involvement in research.	52.6%	47.4%	72.7%	27.3%	35.3%	64.7%	100.0%	0.0%	0.0%	100.0%	50.9%	49.1%
	Research to support the development of education programmes to provide basic training in research for people living with or after cancer to prepare for a role as a patient/public representative in research.	52.6%	47.4%	81.8%	18.2%	41.2%	58.8%	66.7%	33.3%	0.0%	100.0%	52.8%	47.2%
	Research to understand the practical needs of people involved in cancer research as a patient/public representative.	57.9%	42.1%	75.0%	25.0%	47.1%	52.9%	66.7%	33.3%	0.0%	100.0%	55.6%	44.4%
	Research to understand the psychological and social impact and needs of people involved in cancer research as a patient/public representative.	52.6%	47.4%	75.0%	25.0%	47.1%	52.9%	66.7%	33.3%	33.3%	66.7%	55.6%	44.4%
	Research to understand the resources needed to support older adults living with and after cancer to act as patient/public representatives in cancer research.	63.2%	36.8%	91.7%	8.3%	58.8%	41.2%	66.7%	33.3%	0.0%	100.0%	64.8%	35.2%

¹ Item revised following round 1; ² New item generated following round 1; ³ Pooled responses from rounds 3 and 4.

4. Discussion

This study established consensus on key priorities for future research in geriatric oncology, underpinned by an agenda driven by older adults living with and after cancer [20]. Using a modified Delphi approach, experts by experience and profession, including older adults, family members and caregivers, healthcare professionals, advocacy professionals and academics, identified 37 of 55 proposed topics as priorities for inclusion in a geriatric oncology research agenda. The inclusion of a cross-sectional consultation in Round four enabled engagement with a broader and more diverse cohort of older adults living with and after cancer, including individuals aged 75–84 years who were not represented in the earlier rounds. The resulting priorities therefore provide insight into the areas that stakeholders considered most important for improving geriatric oncology survivorship, particularly treatment decision-making and outcomes, recognition of cancer symptoms, management of multimorbidity and frailty, integrated models of care, and rehabilitation and recovery following cancer treatment.

Consistent with the qualitative work that informed the initial set of priorities, all topics within the cancer treatment theme achieved consensus across all rounds of the Delphi [20]. While the development of new treatments for older adults was strongly prioritised, participants also emphasised the importance of research addressing factors that shape treatment decision-making and outcomes. Priorities relating to older adults' preferences, informed decision-making and treatment outcomes achieved particularly high levels of agreement. In geriatric oncology, understanding how older adults weigh potential benefits and harms of treatment is essential to addressing the complex and heterogeneous needs of this population [24,25]. Evidence suggests that older adults often prioritise quality of life over extended survival [24], highlighting the importance of aligning treatment decisions with individual values, functional status, and life goals. Research that supports the integration of comprehensive geriatric assessment, including identification of personal health priorities, has the potential to optimise treatment outcomes and patient satisfaction [25]. Addressing unmet, age-specific information needs is also critical to ensuring that decision-making processes are both clinically effective and person-centred.

The prioritisation of research on recognising cancer symptoms in older adults is also noteworthy. Symptom recognition in this population is complicated by multimorbidity, functional decline, frailty, and social support needs, which can make it difficult to distinguish potential cancer symptoms from existing health conditions or age-related changes [3–7]. This is important in the context of broader inequities in geriatric oncology, where older adults remain underrepresented in research and may experience disparities in care and treatment that affect outcomes [1,26]. Consensus on this theme highlights the need for research to strengthen awareness, assessment, and escalation of concerning symptoms across primary, community, and specialist care settings, particularly where delayed recognition or investigation may affect treatment options, symptom burden, functional decline, and survivorship outcomes.

Findings from open-text responses further highlighted the importance of research addressing unmet needs in survivorship and the development of specialist services, systems, and professional training to support the management of comorbid health conditions among older adults living with and after cancer. Integrated care models, which coordinate care across multiple providers, have demonstrated benefits including improved access, enhanced patient experience and better health outcomes [27–29]. However, the implementation of integrated care services remains uneven internationally, with clinical, organisational and financial barriers limiting widespread adoption [30]. The prioritisation of integrated care within this study underscores the need for research that examines how such models can be effectively designed,

implemented and sustained to meet the complex needs of older adults affected by cancer.

Supportive care and rehabilitation for older adult cancer survivors also emerged as a key research priority. Survivorship care is inherently complex, requiring coordinated approaches to address physical, psychological, and social challenges across the cancer trajectory [31–34]. For older adults, these challenges are compounded by age-related functional decline, multimorbidity, and the late effects of cancer treatment, which can significantly affect independence and quality of life [3–7]. The prioritisation of research in this area reflects both the growing population of older cancer survivors and recognition that age-appropriate supportive care and rehabilitation services are still developing. Further research is needed to inform robust survivorship care models that respond to the specific and nuanced needs of older adults [8–10]. This theme also reinforces the importance of moving beyond disease-focused outcomes to consider function, independence, and participation in daily life as central survivorship outcomes for older adults. Research in this area should therefore examine not only whether supportive care and rehabilitation interventions are effective, but also how they can be implemented across oncology, geriatric, primary, and community care settings.

Research themes relating to the impact of COVID-19 on people living with or after cancer and to patient and public involvement in research were consistently ranked as lower priorities in the early rounds of the Delphi. The lower prioritisation of COVID-19-related research may reflect perceptions that the acute phase of the pandemic has passed and that a substantial evidence base has already been generated. Nonetheless, understanding how adaptations to cancer services during COVID-19 have shaped care for older adults remains important, particularly in informing future service resilience and responsiveness [35].

Similarly, while patient and public involvement is widely recognised as valuable, it may be perceived as less urgent due to practical challenges, including resource constraints and limited training opportunities [2,12,36–38]. Persistent misconceptions regarding the vulnerability or engagement capacity of older adults further contribute to their underrepresentation in research [39,40]. Although PPI did not emerge as a top-ranked priority, continued efforts to enhance meaningful involvement of older adults across the research lifecycle remain important to ensure that research reflects their lived experiences and priorities [21].

The familial and social impact of cancer is well recognised in national and international policy [41–43]. Despite this, priorities relating to family members and caregivers initially ranked lower in the Delphi process, although a greater number of these topics achieved consensus in Round 4. This shift may reflect the increased representation of family members and caregivers in the later round. A cancer diagnosis inevitably affects family members across physical, psychosocial, and economic domains [44–47], particularly in the context of increasing reliance on informal caregiving to support older adults to age in place [48]. The prioritisation of caregiver-related research highlights the need to better understand and support families who play a critical role in the care of older adults living with and after cancer.

5. Limitations

This study has several limitations. Recruitment relied primarily on social media and organisational networks, which may have excluded individuals not engaged with these platforms and influenced the composition of the initial Delphi rounds. The modified Delphi approach, including a cross-sectional final round, deviated from traditional consensus-building methods; however, this adaptation was informed by older adults' stated preferences and facilitated broader participation by individuals aged over 75 years. While Round 4 participants were not involved in earlier rounds, this approach enhanced inclusivity and

strengthened representation of lived experience. As with all Delphi studies, findings reflect the views of those who participated and may not capture all perspectives relevant to geriatric oncology research.

6. Conclusion

This Delphi study established consensus on priorities for future research in cancer survivorship within geriatric oncology. The findings have important implications for guiding future research, practice, and policy, ensuring that research agendas reflect the complexities of cancer in older adulthood. Consensus was achieved on 37 research priorities, highlighting the importance of research focused on informed decision-making, treatment outcomes, and quality of life. The consensus-driven process underscores the need to prioritise research that supports shared and informed decision-making, addresses the needs and preferences of older adults affected by cancer, and advances the development of integrated and supportive care services that account for ageing, cancer, and multimorbidity. By grounding research priorities in the views and experiences of older adults and other key stakeholders, this study contributes to the development of a more responsive and impactful research agenda. Such an agenda is well positioned to inform future research initiatives and support policy and practice developments that better address the needs of older adults living with and after cancer.

Patient consent statement

All participants provided written, informed consent.

Ethics approval statement

This study received ethical approval from the University Research Ethics Committees (Reference: LS-21–31-Drury) and the Research Ethics Committee of the participating hospital (Reference: JREC-256 Drury).

Permission to reproduce material from other sources

N/A.

Funding statement

This research was supported by funding from the Irish Research Council/ Research Ireland New Foundations Award 2021. The authors alone are responsible for the content of this presentation.

Clinical trial registration

N/A.

Authors' contributions statement

Amanda Drury: Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Funding acquisition, Project administration, Resources, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. Aoife O'Brien: Data curation, Formal analysis, Validation, Writing – review & editing. Sarah Sheehan: Formal analysis, Validation, Writing – review & editing. Liz O'Connell: Validation, Writing – review & editing. Sarah Cosgrave: Validation, Writing – review & editing. Michelle Hannan: Validation, Writing – review & editing. Caroline Smyth: Validation, Writing – review & editing. Kristen Fessele: Validation, Writing – review & editing. Mary Harkin: Validation, Writing – review & editing. Lisa Rogers: Data curation, Formal analysis, Validation, Writing – review & editing.

Declaration of competing interest

The authors report no competing interests.

Acknowledgements

The authors would like to thank the clinical and advocacy services who supported recruitment and data collection for this study.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jgo.2026.103056>.

Data availability statement

The datasets generated during and/or analysed during the current study are not publicly available. Excerpts of data are available from the corresponding author upon reasonable request and following a signed data sharing agreement.

References

- [1] Puts MTE, Sattar S, Ghodrati-Jabloo V, et al. Patient engagement in research with older adults with cancer. *J Geriatr Oncol* 2017;8(6):391–6. <https://doi.org/10.1016/j.jgo.2017.05.002>.
- [2] Colomer-Lahiguera S, Steimer M, Ellis U, et al. Patient and public involvement in cancer research: a scoping review. *Cancer Med* 2023;12(14):15530–15543. doi:<https://doi.org/10.1002/cam4.6200>.
- [3] Darker C, Casey E, Seraukina T, Whiston L, O'Shea B. The patients' perspective: A survey of chronic disease Management in Ireland. <http://www.adelaide.ie/wp-content/uploads/2015/04/The-Patients-Perspective-a-Survey-of-Chronic-Disease-Management-in-Ireland-Darker-et-al.-201511.pdf>; 2015.
- [4] Lee MS, Nelson AM, Thompson LM, Donovan KA. Supportive care needs of oral cancer survivors: prevalence and correlates. *Oral Oncol* 2016;53:85–90. <https://doi.org/10.1016/j.oraloncology.2015.11.007>.
- [5] Moghaddam N, Coxon H, Nabarro S, Hardy B, Cox K. Unmet care needs in people living with advanced cancer: a systematic review. *Support Care Cancer* 2016;24(8):3609–22. <https://doi.org/10.1007/s00520-016-3221-3>.
- [6] Drury A, Payne S, Brady A-M. The cost of survival: an exploration of colorectal cancer survivors' experiences of pain. *Acta Oncol* 2017;56(2):205–11. <https://doi.org/10.1080/0284186X.2016.1266084>.
- [7] Drury A, Payne S, Brady A-M. Cancer survivorship: advancing the concept in the context of colorectal cancer. *Eur J Oncol Nurs* 2017;29:135–47. <https://doi.org/10.1016/j.ejon.2017.06.006>.
- [8] Outlaw D, Abdallah M, Gil-Jr LA, et al. The evolution of geriatric oncology and geriatric assessment over the past decade. *Semin Radiat Oncol* 2022;32(2):98–108. <https://doi.org/10.1016/j.semradonc.2021.11.002>.
- [9] Diaz FC, Hamparsumian A, Loh KP, et al. Geriatric oncology: a 5-year strategic plan. *Am Soc Clin Clin Oncol Educ Book* 2024;44(3):e100044. <https://doi.org/10.1200/edbk.100044>.
- [10] Hurria A, Mohile SG, Dale W. Research priorities in geriatric oncology: addressing the needs of an aging population. *J Natl Compr Canc Netw* 2012;10(2):286–8. <https://doi.org/10.6004/jnccn.2012.0025>.
- [11] Viergever RF, Olifson S, Ghaffar A, Terry RF. A checklist for health research priority setting: nine common themes of good practice. *Health Res Policy Syst* 2010;8:1–9. <https://doi.org/10.1186/1478-4505-8-36>.
- [12] Pizzo E, Doyle C, Matthews R, Barlow J. Patient and public involvement: how much do we spend and what are the benefits? *Health Expect* 2015;18(6):1918–26. <https://doi.org/10.1111/hex.12204>.
- [13] Brett J, Staniszewska S, Mockford C, et al. Mapping the impact of patient and public involvement on health and social care research: a systematic review. *Health Expect* 2014;17(5):637–50. <https://doi.org/10.1111/j.1369-7625.2012.00795.x>.
- [14] Cuthbert C, Nixon N, Vickers M, et al. Top 10 research priorities for early-stage colorectal cancer: a Canadian patient-oriented priority-setting partnership. *CMAJ Open* 2022;10(1):E278–87. <https://doi.org/10.9778/cmajo.20210046>.
- [15] Schilstra CE, Sansom-Daly UM, Schaffer M, et al. "we have all this knowledge to give, so use us as a resource": partnering with adolescent and young adult Cancer survivors to determine consumer-led research priorities. *J Adolesc Young Adult Oncol* 2022;11(2):211–22. <https://doi.org/10.1089/jayao.2021.0052>.
- [16] Haase KR, Tompson MA, Hall S, Sattar S, Ahmed S. Engaging older adults with Cancer and their caregivers to set research priorities through Cancer and aging research discussion sessions. *Oncol Nurs Forum* 2021;48(6):613–22. <https://doi.org/10.1188/21.Onf.613-622>.
- [17] Cadorin L, Bressan V, Truccolo I, Suter N. Priorities for cancer research from the viewpoints of cancer nurses and cancer patients: a mixed-method systematic review. *Cancer Nurs* 2020;43(3):238–56. <https://doi.org/10.1097/NCC.0000000000000776>.
- [18] Zanville NZ, Cohen B, Gray TF, et al. The oncology nursing society rapid review and research priorities for cancer care in the context of COVID-19. *Oncol Nurs Forum* 2021;48(2):131–45. <https://doi.org/10.1188/21.Onf.131-145>.
- [19] Nightingale G, Mohamed MR, Holmes HM, et al. Research priorities to address polypharmacy in older adults with cancer. *J Geriatr Oncol* 2021;12(6):964–70. <https://doi.org/10.1016/j.jgo.2021.01.009>.

- [20] Drury A, O'Brien A, O'Connell L, et al. Setting a patient-driven agenda for Cancer research priorities in geriatric oncology: a qualitative study. *Semin Oncol Nurs* 2023;39(4):151463. <https://doi.org/10.1016/j.soncn.2023.151463>.
- [21] Drury A, O'Brien A, O'Connell L, et al. Involving older adults in supportive care research: what do older adults want? A qualitative study. *Supportive Care in Cancer* 2025;53(Suppl 1):S123. <https://doi.org/10.1007/s00520-025-09559-7>.
- [22] Jünger S, Payne SA, Brine J, Radbruch L, Brearley SG. Guidance on conducting and REporting DElphi studies (CREDES) in palliative care: recommendations based on a methodological systematic review. *Palliat Med* 2017;31(8):684–706. <https://doi.org/10.1177/0269216317690685>.
- [23] Krippendorff K. *Content analysis: An introduction to its methodology*. 4th ed. Sage publications Inc; 2019.
- [24] Soto-Perez-de-Celis E, Dale W, Katheria V, et al. Outcome prioritization and preferences among older adults with cancer starting chemotherapy in a randomized clinical trial. *Cancer* 2024. <https://doi.org/10.1002/cncr.35333>.
- [25] Diaz FC, Velazquez AI, Tsang M. Geriatric assessments in older adults with Cancer. *JAMA Oncol* 2023;9(11):1592. <https://doi.org/10.1001/jamaoncol.2023.3329>.
- [26] Scher KS, Hurria A. Under-representation of older adults in cancer registration trials: known problem, little progress. *J Clin Oncol* 2012;30(17):2036–8. <https://doi.org/10.1200/JCO.2012.41.6727>.
- [27] Gupta M, Ali HK, Savo D, Conroy M, Wilkins KM. Integrated primary and mental health Care for Older Adults: successes, challenges, and recommendations. *Curr. Geriatr. Reports* 2019;8(3):137–47. <https://doi.org/10.1007/s13670-019-00285-7>.
- [28] Presley CJ, Krok-Schoen JL, Wall SA, et al. Implementing a multidisciplinary approach for older adults with cancer: geriatric oncology in practice. *BMC Geriatr* 2020;20(1):231. <https://doi.org/10.1186/s12877-020-01625-5>.
- [29] Karacsony S, Merl H, O'Brien J, et al. What are the clinical and social outcomes of integrated care for older people? A qualitative systematic review. *Int J Integr Care* 2022;22(3):14. <https://doi.org/10.5334/ijic.6469>.
- [30] Wu J, Xue E, Huang S, et al. Facilitators and barriers of integrated care for older adults with multimorbidity: a descriptive qualitative study. *Clin Interv Aging* 2023; 18:1973–83. <https://doi.org/10.2147/cia.S436294>.
- [31] Vaz-Luis I, Masiero M, Cavaletti G, et al. ESMO expert consensus statements on Cancer survivorship: promoting high-quality survivorship care and research in Europe. *Ann Oncol* 2022;33(11):1119–33. <https://doi.org/10.1016/j.annonc.2022.07.1941>.
- [32] Schofield P, Chambers S. Effective, clinically feasible and sustainable: key design features of psycho-educational and supportive care interventions to promote individualised self-management in cancer care. *Acta Oncol* 2015;54(5):805–12. <https://doi.org/10.3109/0284186X.2015.1010016>.
- [33] Loonen JJ, Blijlevens NM, Prins J, et al. Cancer survivorship care: person centered care in a multidisciplinary shared care model. *Int J Integr Care* 2018;18(1):4. <https://doi.org/10.5334/ijic.3046>.
- [34] Drury A, Payne S, Brady A-M. Adapting the pillar integration process for theory development: the theoretical model of healthcare factors influencing quality of life in Cancer survivorship. *J Mixed Methods Res* 2023;17(3):264–87. <https://doi.org/10.1177/15586898221134730>.
- [35] Broom A, Williams Veazey L, Kenny K, et al. The enduring effects of COVID for Cancer care: learning from real-life clinical practice. *Clin Cancer Res* 2023;29(9): 1670–7. <https://doi.org/10.1158/1078-0432.Ccr-23-0151>.
- [36] Brett J, Staniszewska S, Mockford C, et al. A systematic review of the impact of patient and public involvement on service users, researchers and communities. *Patient Patient-Centered Outcomes Res* 2014;7(4):387–95. <https://doi.org/10.1007/s40271-014-0065-0>.
- [37] Agyei-Manu E, Atkins N, Lee B, et al. The benefits, challenges, and best practice for patient and public involvement in evidence synthesis: a systematic review and thematic synthesis. *Health Expect* 2023;26(4):1436–52. <https://doi.org/10.1111/hex.13787>.
- [38] Hoffmann Pii K, Schou LH, Piil K, Jarden M. Current trends in patient and public involvement in cancer research: a systematic review. *Health Expect* 2019;22(1): 3–20. <https://doi.org/10.1111/hex.12841>.
- [39] Davis SF, Silvester A, Barnett D, Farndon L, Ismail M. Hearing the voices of older adult patients: processes and findings to inform health services research. *Res Involv Engagem* 2019;5:11. <https://doi.org/10.1186/s40900-019-0143-5>.
- [40] Baldwin J, Napier S, Neville S, Wright-St Clair V. Impacts of older people's patient and public involvement in health and social care research: a systematic review. *Age Ageing* 2018;47. <https://doi.org/10.1093/ageing/afy092>.
- [41] European Commission. European missions: Cancer implementation plan. https://ec.europa.eu/info/sites/default/files/research_and_innovation/funding/document/s/cancer_implementation_plan_for_publication_final_v2.pdf; 2021.
- [42] European Commission. Europe's beating Cancer plan. https://health.ec.europa.eu/system/files/2022-02/eu_cancer_plan_en_0.pdf; 2021.
- [43] Department of Health Ireland. National Cancer Strategy 2017–2026. 2017.
- [44] Lambert SD, Levesque JV, Girgis A. The impact of Cancer and chronic conditions on caregivers and family members. In: Koczwara B, editor. *Cancer and chronic conditions: Addressing the problem of multimorbidity in Cancer patients and survivors*. Springer Singapore; 2016. p. 159–202.
- [45] Sun V, Puts M, Haase K, et al. The role of family caregivers in the Care of Older Adults with Cancer. *Semin Oncol Nurs* 2021;37(6):151232. <https://doi.org/10.1016/j.soncn.2021.151232>.
- [46] Alzehr A, Hulme C, Spencer A, Morgan-Trimmer S. The economic impact of cancer diagnosis to individuals and their families: a systematic review. *Support Care Cancer* 2022;30(8):6385–404. <https://doi.org/10.1007/s00520-022-06913-x>.
- [47] Unsar S, Erol O, Ozdemir O. Caregiving burden, depression, and anxiety in family caregivers of patients with cancer. *Eur J Oncol Nurs* 2021;50:101882. <https://doi.org/10.1016/j.ejon.2020.101882>.
- [48] Plöthner M, Schmidt K, de Jong L, Zeidler J, Damm K. Needs and preferences of informal caregivers regarding outpatient care for the elderly: a systematic literature review. *BMC Geriatr* 2019;19(1):82. <https://doi.org/10.1186/s12877-019-1068-4>.