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From Evidence to Action: Stakeholder Views on Sharing Exercise Oncology Findings

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From Evidence to Action: Stakeholder Views on Sharing Exercise Oncology Findings

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Abstract

Exercise is an effective intervention at mitigating many of the sequalae of cancer and its treatments. However, a scarcity of exercise services for cancer survivors remains, highlighting a research-to-practice gap. Accordingly, there is considerable rationale to explore strategies to enhance the implementation of exercise oncology trial findings into clinical practice. Dissemination is the active process of spreading research findings to key stakeholders and is crucial to the implementation of evidence base practice. However, little is known regarding the optimal methods of disseminating results of exercise oncology trials. To this end, this project aimed to explore the viewpoints of stakeholders (patients/ health care professionals (HCPs)/ policy makers/ researchers) on the dissemination of exercise oncology trials. Stakeholders were invited to take part in a one-to-one semi-structured interview exploring their experiences of and preferences for exercise oncology trial dissemination. Interviews were audio recorded, transcribed verbatim, and analyzed using a thematic approach. Thirty stakeholders were recruited: patients with a history of cancer (n=14), health care professionals (HCPs) (n=3), researchers (n=10), and policy makers/ health care management (n=3). Median interview length was 14 minutes and 10 seconds (range 8 minutes 16 seconds to 37 minutes and 23 seconds). Three main themes were identified: i) The need for enhanced dissemination strategies, ii) engaging stakeholders throughout the study lifespan is key to facilitating effective dissemination and iii) tools to facilitate closing the research to practice gap. Stakeholders acknowledged that there is limited awareness amongst the public regarding the benefits of exercise across the cancer trajectory, and that accessible and trustworthy information delivered through a variety of mediums to target different stakeholders is required. Stakeholders felt strongly that research outputs need to be targeted to the interests of key stakeholders to aid the integration of evidence into practice, and that buy-in from clinicians is paramount to integrating exercise into usual care. Results of this qualitative study highlight there is a need for more widespread and targeted dissemination of exercise oncology trial results. Stakeholders recommended a comprehensive approach to dissemination to help mitigate the research to practice gap.

Keywords: dissemination; exercise oncology; research to practice gap

1. Introduction

The incidence of cancer is growing, with approximately 20 million people diagnosed in 2022 [1]. Advancements in treatment options has led to increased survival, therefore more people are living longer with cancer [2]. Although survival has improved, the treatments that achieve this are often associated with numerous adverse effects. Exercise is increasingly recognized as a supportive care intervention, with a growing body of research supporting its role across the cancer care continuum

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[3,4]. Progressive and innovative exercise interventions have been explored to address key challenges across prehabilitation, active treatment, and survivorship phases of care [4]. Findings suggest that exercise is effective at mitigating many of the adverse effects of cancer and its treatment, improving health related quality of life and increasing disease-free survival [3,4]. However, despite these meaningful findings and multiple guidelines, translation into clinical practice remains limited [5–8].

A 2022 American Society of Clinical Oncology survey of 2,419 cancer patients found that only 49% of cancer patients engaged in exercise three or more times per week [9]. Furthermore, while 52.3% of the included patients were recommended to exercise, only 14.2% of the participants were referred to an exercise programme [9]. A key barrier identified to integration of exercise into clinical care is the limited knowledge around role and safety for people with cancer among healthcare professionals [10,11]. This limited knowledge reduces the likelihood of referrals into exercise services or awareness of their availability [10,11]. Furthermore, healthcare professionals' lack of confidence in discussing exercise can undermine patients' confidence in participating, creating a barrier to engagement [12]. Oncology healthcare professionals have reported an insufficient education on the role of exercise in cancer care, highlighting the need for accurate and accessible information to support their continuous professional development [13]. Accordingly, increasing awareness and knowledge of exercise oncology among patients is important, as positive preconceptions about its benefits can facilitate engagement [12]. Therefore, there is a need for accessible, high-quality, evidence-based resources that help healthcare providers and patients understand the role and safety of exercise in cancer care.

Dissemination is the targeted process of sharing and distributing information to stakeholders [14,15]. However, challenges in disseminating evidence-based resources can limit their applicability in clinical care. Given the significant research-to-practice gap in exercise oncology, these dissemination challenges are particularly evident in this field. Dissemination and implementation science focuses broadly on tools to support dissemination of results and therefore implementation within the clinical pathways. However, little is known regarding the optimal methods of disseminating results of exercise oncology trials. To this end, this project aimed to explore the viewpoints of stakeholders in exercise oncology research including; i) patients with cancer, ii) policy makers and healthcare organisations, iii) researchers, and iv) health care professionals (HCP)

2. Materials and Methods

This qualitative study used semi-structured interviews to explore stakeholders' experiences, attitudes and preferences for dissemination of exercise oncology research.

2.1. Ethical Approval

Ethical approval for this study was granted by the St. James's Hospital/ Tallaght University Hospital Joint Research Ethics Committee on the 30th June 2022. The study was performed in accordance with the Declaration of Helsinki. All participants provided written informed consent.

2.2. Participants and Recruitment

Study participation was open to stakeholders in exercise oncology research, including patients with a diagnosis of cancer (who may or may not have participated in an exercise oncology trial), researchers, HCPs and representatives of health care management and policy makers.

A multi-pronged approach to recruitment was implemented. Potential participants were invited to self -refer to the study by responding to social media adverts shared by the Principal Investigator (LON) on the platform X (formerly Twitter) between July and October 2022. Purposive sampling was used to target policy makers and managers known to the research team. An expression of interest email was sent inviting them to participate during the summer of 2022. Finally, patients enrolled in the 'Preoperative Exercise to Improve Fitness in Patients Undergoing Complex Surgery for Cancer of the Lung or Oesophagus (PRE-HIIT)' trial [16] and 'Rehabilitation Strategies following Oesophageal

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and Hepatopancreaticobilary Cancer (ReStOre II)' trial [17] who had consented to contact for future research purposes were sent a letter including the participant information leaflet in July 2022 inviting them to participate.

2.3. Data Collection

Participants were invited to take part in a once off semi-structured interview. Interviews were conducted either via telephone call, Zoom call, or face to face at the Trinity Centre for Health Sciences at St James's Hospital Campus, Dublin, Ireland. Sociodemographic data including stakeholder group, gender, age group, education level and employment status were recorded pre-interview. Interviews were facilitated by LON, a female, using a flexible interview guide (see Table 1). At the time of the interviews, LON was a Senior Research Fellow and Project Manager with an undergraduate degree in Physiotherapy and extensive experience in exercise oncology research, trials methodology research, and qualitative research methods. Participants were aware of LON's credentials and the goals of the research. FM a male summer research student (studying Medicine) was present for the first 15 interviews and recorded field notes. Only the facilitator and the participant were present for interviews 15 onwards. Interviews were audio-recorded using the Zoom video calling system or Dictaphone.

Table 1. Interview Guide.

Questions for Patients/ Trial Participants
• Could you tell me about your own experience of receiving information about research findings (if applicable)? • What do you believe is most important for you to know when it comes to learning about findings from exercise studies for people living with and beyond cancer? • How would you like to find out about research findings? • When it comes to sharing research findings with family members, how do you think this information should be shared? • In what way could patients and their family members help in the sharing of research findings?
Questions for Researchers
• Tell me a bit about your own experience in exercise oncology? • What do you believe is most important for you to know when it comes to learning about findings from exercise studies for people living with and beyond cancer? • Where would you go to learn about latest findings in exercise oncology research? • Can you tell me about the dissemination activities you have undertaken? What has worked well? What hasn't? • What is your view on how exercise oncology research is disseminated at present? • How do you think researchers should communicate their research findings to HCPs/ policy makers/ patients and their families? • How do you think we can bridge the gap from evidence to implementation?
Questions for Health Care Professionals
• Tell me a bit about your own experience in exercise oncology? • What do you believe is most important for you to know when it comes to learning about findings from exercise studies for people living with cancer and beyond cancer? • Where would you go to learn about latest findings in exercise oncology research? E.g. journals, podcasts, social media etc.

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• What is your view on how exercise oncology research is disseminated at present? • How do you think researchers should communicate their research findings to healthcare professionals? • How do you think we can bridge the gap from evidence to implementation?
Questions for Policy Makers/ Health Care Management
• What is your view on how exercise oncology research is disseminated at present? • Do you have any views on how it could be improved? • How do you think researchers should communicate their research findings to policy makers? • How do you think we can bridge the gap from evidence to implementation?

2.4. Data Analysis

Transcripts were transcribed verbatim (FM, AOB, and SB), pseudo anonymised, and uploaded to NVIVO 14 (QSR International, Australia) software for analysis. An inductive qualitative descriptive approach, following Braun and Clarke's guidance for thematic analysis was implemented to analyse the dataset [18]. A preliminary analysis was conducted after n=15 interviews by three researchers (AOB, FM, and LON). AOB was a research assistant with an undergraduate and postgraduate degree in psychology and experienced in qualitative methods, and FM who holds an undergraduate degree in Integrative Health Sciences and was completing his second degree in Medicine. FM was novice to such methods but had received training under the guidance of LON as part of his summer studentship. AOB, FM, and LON engaged in data familiarisation by reading and rereading transcripts and documenting initial codes. Next AOB and FM independently generated initial codes for the whole dataset. At this point it was noted that data saturation was not reached and that further interviews particularly more with patients were required to give a broader and richer data set.

Final analysis was conducted by LON and ES following completion of all 30 interviews. ES was a female Postdoctoral Research Fellow and CORU registered Physiotherapist with significant exercise oncology experience in both the clinical and research spheres and is experienced in qualitative methods. Both LON and ES generated codes across the data set, arranged codes into themes, rechecked codes to ensure they were in line with their assigned codes, and reviewed the final themes together. Any differences in how data were assigned to a theme were discussed and agreement was reached. Member checking did not occur. The COREQ criteria was used as a guide for preparation of the manuscript to ensure completeness of reporting of the study methodology and results [19].

3. Results

Thirty stakeholders were recruited between July and December 2022. Fourteen stakeholders identified as patients of whom 13 had experience of exercise oncology trial participation, 13 stakeholders identified as HCPs of whom 3 had no research experience, 7 were research active, and 3 were health care management/ policy makers, and 3 were researchers from exercise physiology backgrounds. The majority of participants (n=25 (83.33%) had a pre-established relationship with the facilitator (n=8 health care professionals/ researchers/ management at facilitators institution, n=13 patients known to facilitator via their previous exercise trial participation, and n=4 were known to the facilitator through exercise oncology research networks in Ireland). Demographic characteristics are presented in Table 2. Median interview length was 14 minutes and 10 seconds (range 8 minutes 16 seconds to 37 minutes and 23 seconds). Three main themes and 10 sub-themes were identified and are presented in Table 3

Table 2. Demographic Characteristics of Participants.

Participant ID	Gender (Male/ Female)	Age Range (years)	Country	Highest level of Education Completed	Employment Status	Stakeholder Role	Health Science Background	Cancer Type	Previous participation in Exercise Trial
P1	Female	18 -24	Ireland	Undergraduate degree	Employed	HCP	Physiotherapist	N/A	N/A
P2	Male	25-34	Ireland	Master's degree	Postgraduate Student	Researcher	Exercise Physiology	N/A	N/A
P3	Female	25-34	Ireland	Undergraduate degree	Postgraduate Student	Researcher/HCP	Physiotherapist	N/A	N/A
P4	Female	35-44	United Kingdom	Master's degree	Employed	Researcher/ HCP	Physiotherapist	N/A	N/A
P5	Female	35-44	Ireland	Doctorate degree	Employed	Researcher/ HCP	Physiotherapist	N/A	N/A
P6	Female	44-54	Ireland	Doctorate degree	Employed	Researcher	Exercise Physiology	N/A	N/A
P7	Male	45-54	United States	Doctorate degree	Self-employed	Patient	Physiotherapist	Brain	No
P8	Female	35-44	Ireland	Master's degree	Employed	Policy Maker and Management	Nursing and Science	N/A	N/A
P9	Female	25-34	United Kingdom	Undergraduate degree	Employed	HCP	Physiotherapy	N/A	N/A
P10	Male	65-74	Ireland	Master's degree	Retired	Patient	N/A	Oesophageal, CLL	Yes
P11	Female	55-64	Ireland	Undergraduate degree	Retired	Patient	N/A	Oesophageal	Yes
P12	Female	35-44	United Kingdom	Master's degree	Employed	Researcher	Physiotherapy	N/A	N/A
P13	Female	55-64	Ireland	Master's degree	Employed	Policy Maker and Management	Psychology and Public Health	N/A	N/A
P14	Female	35-44	Ireland	Master's degree	Employed	Researcher/HCP	Physiotherapist	N/A	N/A

P15	Female	25-34	Ireland	Doctorate degree	Employed	Researcher/HCP	Physiotherapist	N/A	N/A
P16	Female	25-34	Ireland	Master's degree	Employed	Policy Maker and Management	Medical Doctor	N/A	N/A
P17	Female	45-54	Ireland	Master's degree	Employed	Researcher/ HCP	Exercise Physiology	N/A	N/A
P18	Female	25-34	Ireland	Doctorate degree	Employed	Researcher/HCP	Occupational Therapist	N/A	N/A
P19	Male	55-64	Ireland	Trade/technical/vocational training	Employed	Patient	N/A	Oesophageal	Yes
P20	Male	55-64	Ireland	Trade/technical/vocational training	Employed	Patient	N/A	Oesophageal	Yes
P21	Male	65-74	Ireland	Secondary school graduate	Retired	Patient	N/A	Oesophageal	Yes
P22	Male	55-64	Ireland	Master's degree	Self-employed	Patient	N/A	Oesophageal	Yes
P23	Male	55-64	Ireland	Secondary school graduate	Employed	Patient	N/A	Oesophageal	Yes
P24	Male	65-74	Ireland	Secondary school graduate	Retired	Patient	N/A	Gastric	Yes
P25	Male	65-74	Ireland	Trade/technical/vocational training	Retired	Patient	N/A	Oesophageal	Yes
P26	Male	55-64	Ireland	Master's degree	Employed	Patient	N/A	Oesophageal	Yes
P27	Female	35-44	Ireland	Master's degree	Employed	Patient	N/A	Oesophageal	Yes
P28	Male	65-74	Ireland	Some secondary school completed	Retired	Patient	N/A	Oesophageal	Yes
P29	Female	25-34	Ireland	Master's degree	Employed	HCP	Physiotherapist	N/A	N/A
P30	Female	55-64	Ireland	Secondary school graduate	Employed	Patient	N/A	Oesophageal	Yes

Abbreviations: CLL = Chronic Lymphocytic Leukaemia, HCP = Health Care Professional, N/A = Not Applicable.

Table 3. Overarching Themes and Sub-Themes.

Theme	Sub-Theme	Descriptive Quote
The need for enhanced dissemination strategies	• Presentation of information in an accessible and meaningful way. • Utilisation of trustworthy dissemination sources. • Implement a multi-pronged dissemination strategy to effectively reach all stakeholder groups.	*''I just I think we need to do maybe quite a bit more work about disseminating to patients and people at the higher levels and the positions of power''* P5
Engaging stakeholders throughout the study lifespan is key to facilitating effective dissemination	• The value of Public and Patient Involvement (PPI) in dissemination • Maximising engagement with policy makers • Collaboration between researchers and HCPs	*''I think involving them in the research, from an early stage is important as well and like involving all sorts of PPI but oncologists and healthcare professionals as well so they are actually embedded in the research from the start''* P2
Tools to facilitate closing the research to practice gap	• Targeting dissemination to outputs of interests of key stakeholders • Cultivating strong relationships with clinicians.	*'My feeling is that it is probably disseminated well within its own community, but we could do a lot more to disseminate outside of our community''* P15

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3.1. Theme 1: The Need for Enhanced Dissemination Strategies

Participants noted that current approaches to dissemination may not reach all relevant stakeholders, indicating that dissemination could be improved. They suggested strategies to optimise dissemination, including presenting information in an accessible and meaningful way, utilising trustworthy dissemination sources, and using a multi-pronged approach to reach diverse stakeholder groups.

3.1.1. Presentation of Information in an Accessible and Meaningful Way

Dissemination of exercise oncology research should be accessible for all stakeholders and to be presented in language which is accessible to the reader. Some participants identified the barrier of interpreting medical data and information "*a lot of like the scientific information needs to be decoded*" P7. Participants felt that results should be presented to each group in a way which is meaningful to them and '*very easy to understand'* (P16). Inclusive strategies such as animations, graphics and videos '*make an impact*' (P16) and allow universal understanding.

3.1.2. Utilisation of Trustworthy Dissemination Sources

Participants value information that is trustworthy and scepticism persists regarding information from various online sources "*I'd always be aware to be careful. Nearly taking everything with a grain of salt*" P21. The uncertainty regarding results online highlighted a desire for dissemination of results from reputable sources "*I want to know if everything is legit. So I want to know if it's valid, the information that I'm getting. So is a source trustworthy?"* P7. Hospitals, cancer charities, and medical professionals were considered trustworthy sharers of information "*I don't think there's a household in Ireland that wouldn't consider the Irish Cancer Society as a credible source of information*" P11.

3.1.3. Implement a Multi-Pronged Dissemination Strategy to Effectively Reach All Stakeholder Groups

Different approaches to dissemination were favoured by each stakeholder group. Traditional dissemination approaches such as journal articles, engagement with professional bodies, workplace learning, and conferences remain popular among healthcare providers, academics and policy makers. Increasingly these stakeholders are discovering new developments through modern dissemination methods like social media and podcasts '*First of all, academic publication is good. That should continue of course. But, at the same time in the age of social media. I think the social media can play a very important role'* P16. Despite growing appreciation of novel approaches for dissemination, reliance on traditional approaches may limit access to some stakeholders. To ensure the message is delivered to all stakeholders there is a need to '*target messages to different sectors, and different groupings'* P13. Participants suggested that a multi-faceted distribution strategy including journal articles and conference, social media (twitter, podcasts, webinars), media (radio, television, newspapers), trusted online platforms (Irish Cancer Society or Macmillan Cancer Support) and patient and researcher meetings support may add value.

Patients who had taken part in a trial valued presentation of results in a meaningful way to them. Individual results showing their progress made throughout the trial was impactful to their recovery *'it's invaluable to get that explained and again as well as the physical improvements'* P11. Additionally, participants valued receiving a summary of results. While they valued the role of a written summary, many felt that written alone may not be enough and that dual dissemination including a written summary by newsletters or online channels in addition to patient events online or and in person would be beneficial '*Apparently, messages reinforce one another, if you have one message'* P10.

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3.2. Theme 2: Engaging Stakeholders Throughout the Study Lifespan Is Key to Facilitating Effective Dissemination

Significant value was placed on establishing and maintaining relationships with all stakeholders to aid dissemination "*We should be involving participants and patients who may benefit from our work as soon as possible. But I think that needs to be on wider terms, the wider stakeholders or policy makers or local or national, what's the word clinical leaders or whatever outside of our immediate groups*" P12. Participants placed significant value on public and patient involvement (PPI), maximising engagement with policy makers and supporting collaboration between HCPs and researchers to provide insights and successful dissemination at trial completion.

3.2.1. The Value of Public and Patient Involvement (PPI) in Dissemination

PPI was considered critical in the dissemination results to patients and members of the public '*I think nothing beats the, you know the patient telling it from their point of view. You know researchers and medical professionals you are disseminating the information and rightly so. But I think to get this it takes personal input. That can make a big difference when you're trying to spread the word I suppose*" P11. Researchers particularly valued the contribution PPI members could make to dissemination and patients felt they had a role to play in making dissemination accessible and relatable and were willing to support trial dissemination activities "*That's good seeing patients and public actually presenting themselves, and its more relatable I suppose for patients*" P2.

3.2.2. Maximising Engagement with Policy Makers

Policy makers placed significant value on researchers instigating and maintaining meaningful engagement with policy makers '*I think it's about probably making sure that those policy makers and stakeholders are aware of I suppose from the very beginning what you tend to do or the plans for the research'* P12. Policy makers felt strongly that maximising this engagement could aid successful dissemination through utilisation of the pathways they can provide. Additionally, ensuring a continuous knowledge transfer between researchers and policy makers through resources such as '*monthly newsletters'* P16 was a central to the process '*It's not just that I am your stakeholder, but you are mine too*" P13.

3.2.3. Collaboration Between Researchers and HCPs

Stakeholders believed dissemination could be enhanced through researchers engaging closely with HCPs. HCPs could enhance dissemination to patients by their expertise in delivering knowledge in patient friendly language, and their frequency of patient contact makes them ideally placed to disseminate the findings of exercise oncology trials to patients "*It might be the healthcare worker helping the researcher to translate it into a language that you know patients can understand*" P3.

3.3. Theme 3: Tools to Facilitate Closing the Research to Practice Gap

Despite dissemination efforts implementation of exercise oncology research remains challenging "*We found frustrating now that we've ran a couple of trials in our hospital that's actually not translated into even a physiotherapy post or a bit of a post*" P12. Ensuring dissemination reaches all relevant audiences, including those outside the exercise oncology research community, facilitates the integration of findings into clinical care: "*We could do a lot more to disseminate outside exercise professionals to different members of MDT'. I think that's what's important and that's what will help it get into patient care*" P15. Participants are motivated to face these challenges and focus on identifying new approaches to '*get across our findings to people that mater internally when research findings are not necessarily that useful to them'*. Tools identified to help with mitigating the research to practice gap included targeting dissemination to outputs of interest of key stakeholders and cultivation of strong relationships with clinicians.

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3.3.1. Targeting Dissemination to Outputs of Interest of Key Stakeholders

When disseminating findings, researchers need to present findings in a meaningful way that captures the interest of each stakeholder group. Researchers focused on the repeatability, effectiveness and compatibility of data "*I say broadly repeatability and from reading up on a manuscript or a study ….. based on the results do something similar*" P12. HCPs seek clinically relevant results which are applicable in a clinical setting and identification of tool to facilitate implementation of exercise interventions "*The staffing that's involved, the exercise equipment that's involved, the space that's involved, if we could see the pt appts that were involved. All of these types of things I'd be thinking of if it can be translated into usual care, into clinical practice*" P15. Patients valued results which were applicable to them, essentially, they want '*some indication that its working'* P21. Finally, policy makers seek data on the cost-effectiveness of the intervention and if it '*saves hospital time, and hospital beds, and hospital money'* P10.

3.3.2. Cultivating Strong Relationships with Clinicians

Buy-in from clinicians, nurses and other HCPs was considered essential in mitigating the evidence to practice gap. Establishing strong collaborative relationships with medics, nurses and members of the MDT can highlight the value of research and allow HCPs to '*see first-hand how you gain the evidence'* P13 which can have '*a big effect on them*" P13. Furthermore, it was acknowledged that consultant buy-in is particularly critical to initiating change in health care delivery. Therefore, it is incumbent upon researchers to build these relationships and share their finding with the clinical community in a clear and meaningful way "*If you can get buy in from your stakeholders from the beginning then you've got a good chance of it being successful, I think getting buy in from your consultants is huge*" P1.

This section may be divided by subheadings. It should provide a concise and precise description of the experimental results, their interpretation, as well as the experimental conclusions that can be drawn.

4. Discussion

The significant research-to-practice gap in exercise oncology highlights the need to identify novel approaches to disseminate the benefits of exercise in cancer care. This is the first piece of work examining how different stakeholder groups prefer research findings to be disseminated. The results provide a deep insight into the different approaches each stakeholder group consider meaningful. These insights provide valuable guidance to inform dissemination strategies, potentially facilitating the translation of research findings into clinical practice. Recommendations generated from this study include adopting a multi-pronged dissemination approach that uses varied methods to address the priorities of specific stakeholder groups; determining intervention specific optimal dissemination strategies through engagement of stakeholders throughout the study, from design to dissemination, to ensure approaches are inclusive and engaging; and integrating novel, trustworthy, and accessible dissemination platforms to support effective engagement with all audiences. However, future work is needed to explore strategies that enable researchers to adopt and integrate these approaches efficiently, providing support that reduces additional workload and ensures that implementation is practical and sustainable.

All stakeholders expressed unique preferences regarding how information should be shared with them, indicating that a single dissemination approach may not effectively reach all audiences and necessitating a multipronged strategy. Conventional dissemination channels, including peer-reviewed journals and conferences, remain the preferred methods for sharing findings among academic and clinical participants. However, participants did acknowledge an overreliance on these, identifying the need for exploration of innovative methods to share results. This reliance on traditional methods of dissemination is prevalent in exercise oncology, as highlighted in a recent systematic review by this research team [20]. Of the 86 protocols included in the review, the majority (n=44, 51.2%) planned to disseminate findings in peer reviewed journals and conferences, while only

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2 (2.3%) planned to disseminate via open access journals, trial registries or cancer charities [20]. This tendency to favour these approaches is understandable given the value placed on publications in an academic setting, where peer-reviewed articles are often the primary metric for promotion and recognition, and it is clear that traditional methods continue to play a valuable role in dissemination [21]. However, with only approximately 28% of research available through open access, the journal paywalls and high conference fees associated with these approaches significantly limit accessibility [22,23]. These paywalls act as a barrier not only to patient stakeholders but also clinicians and policymakers who may not have easy access through institutions. Therefore, adopting a multipronged strategy, targeting each stakeholder group in a way that is accessible to them, provides an opportunity to combine traditional methods with innovative and accessible approaches, ensuring results are available to all.

The accessibility issues identified with traditional approaches extended beyond information source access. Patients' and non-academic stakeholders' reported difficulty comprehending the academic presentation of results, highlighting the need for results to be presented using more accessible strategies. Using clear and understandable language on widely available platforms, such as media and social media, was identified in this study as inclusive approaches. Making language understandable is an important strategy for improving accessibility across populations and was similarly identified in a dementia cohort as a tool to enhance dissemination [24]. Social media has potential as an impactful tool for the rapid and effective dissemination of healthcare results, reaching more people than would be possible otherwise, however our previous work identified that only six of 86 exercise oncology protocols planned to use social media for dissemination [20,25]. Evidently, inherent limitations exist as social media is often associated with misinformation, necessitating a high level of health literacy to distinguish between credible and non-credible sources of information [26]. Given that the credibility of source information was a key value for participants in this study, the correct application of social media for scientific dissemination needs to be carefully considered. Scholarly podcasts were also identified as a potential tool to support accessibility and represent a novel and emerging approach to dissemination [27]. Scholarly podcasts are an effective dissemination tool, providing a flexible learning environment which can bring awareness to specific areas and reach a wide range of audiences, often extending beyond the original target group [27]. While there are challenges with podcasts, such as financial and time burdens, they offer a reciprocal environment where listeners can provide feedback and ask questions, fostering a cohesive setting that promotes knowledge sharing and engagement across stakeholder groups [27].

Engaging stakeholders from planning through to dissemination offers a valuable opportunity to ensure that inclusive approaches are integrated from the outset. Public and patient involvement (PPI), that is the involvement of people with lived experience as partners in research, is gaining increased traction. PPI involvement is important for informing all aspects of research, including dissemination, with significant potential to inform and enhance communication strategies. However, within dissemination planning and implementation, it is often significantly under-utilised [28]. A 2023 study explore the nature and timing of PPI involvement in studies, identified discrepancies between the utilisation of PPI in the planning and implementation phases compared to the dissemination phase [28]. Despite this, in the current study both researchers and patients clearly express a desire for PPI engagement in dissemination planning. A 2024 study in dementia mirrored results from our study, emphasising that 'everyone's voice is needed' and calling for active engagement of PPI contributors and stakeholders to be integrated into a co-production plan from the very start of study planning [24]. These findings, together with our study, advocate for the value of PPI engagement in dissemination planning and implementation. Furthermore, evidence of the desire for PPI and stakeholder engagement in dissemination can be seen among researchers and healthcare providers in this study and is also demonstrated by the growing inclusion of patient partners as coauthors in publications and heightened reader interest in articles that report it [29]. However, despite the established precedent for the need for stakeholder involvement throughout the process, it is not yet widely implemented. Therefore, when planning future studies, trialists should prioritise

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engaging all stakeholders, including PPI representatives, clinicians and policy makers, from the onset of study development with particular attention to dissemination planning.

Limitations

Whilst our methodological approach was robust and study reported transparently in line with the CORE-Q checklist, it is important to highlight several methodological limitations. Firstly, purposive sampling of stakeholders may have caused sampling bias, whereas in contrast self-referral to the study may have led to volunteer bias, limiting generalisability of results. Furthermore, most of our stakeholders were resident in the Ireland or Great Britain. It is therefore important to acknowledge that the dissemination preferences of stakeholders from other jurisdictions may vary to those reported in this study. Additionally, this work focused on how and where people want evidence to be presented. Further work is needed to explore how best to support researchers to leverage communication and dissemination supports to integrate these approaches effectively.

5. Conclusions

There is a need for broader and more targeted dissemination of exercise oncology trial results, alongside efforts to enhance the credibility of platforms to ensure timely and wide-reaching distribution of research findings. Additional work is needed to identify approaches that support researchers in integrating and adopting these practices without adding excessive workload. Recommended strategies to enhance dissemination include:

1. Adopting a multi-pronged dissemination approach that uses varied methods to address the priorities of specific stakeholder groups;
2. Determining the intervention specific optimal dissemination strategies through engagement of stakeholders throughout the study, from design to dissemination, to ensure approaches are inclusive and engaging;
3. Integrating novel, trustworthy, and accessible dissemination platforms to support effective engagement with all audiences.

Adoption of these strategies may strengthen dissemination approaches within exercise oncology and support the integration of evidence-based interventions into clinical practice.

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Abbreviations

The following abbreviations are used in this manuscript:

HCP	Health Care Professional
PPI	Public and Patient Involvement

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