

Research Article

Patient Experiences of a Telehealth Multidisciplinary Cancer Rehabilitation Programme: Qualitative Findings from the ReStOre@Home Feasibility Study

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Purpose. Multidisciplinary rehabilitation programmes providing exercise, nutrition support, education, and peer support can effectively meet the rehabilitation needs of upper gastrointestinal (UGI) cancer survivors. This study aimed to explore the experiences of participants who engaged in a telehealth, multidisciplinary rehabilitation programme for UGI cancer survivors. **Methods.** This single-arm feasibility study recruited participants who completed curative treatment for UGI cancer. Participants ($n = 10$, male = 9) aged 58–76 years were 5–17 months postsurgery. A 12-week telehealth rehabilitation programme was delivered via video call, consisting of group resistance training, remotely monitored aerobic training, 1:1 dietary counselling, 1:1 physiotherapy support, and group education sessions. Independent researchers conducted semistructured interviews at post-intervention assessments. Transcripts were analysed using reflexive thematic analysis (RTA). **Results.** RTA of participant transcripts generated three overarching themes: (1) ReStOre@Home impacted psychosocial and physical needs by addressing a broad and meaningful gap in services, (2) paving a pathway towards prosperity, and (3) contrasting experiences with using technology. Participants' preferences and recommendations for future telehealth programmes were discussed. **Conclusions.** A telehealth multidisciplinary rehabilitation programme supported participants in physical and psychosocial recovery. Qualitative analysis identified an important ongoing need for some in-person care and provided detailed insights into participant experiences during telehealth-delivered rehabilitation.

1. Introduction

Improvements in upper gastrointestinal (UGI) cancer diagnosis and treatment have led to an increasing number of people living with and beyond UGI cancer and, therefore, a growing global population of people living with the consequences of UGI cancer treatment [1, 2]. The intended curative treatment combinations of surgery, chemotherapy, and/or radiation therapy for UGI cancers are associated with a high rate of complications [3, 4]. Two thirds of patients experience long-term treatment side effects [4], with fatigue

(41%), problems sleeping (51%), and eating restrictions (49%) as the most common long-term symptoms reported one year postoperation [5]. Pain, dyspnoea, anxiety, low mood, reduced cardiovascular fitness, and reduced physical function are further wide-ranging and common side effects of treatment which negatively impact physical and psychosocial functioning and health-related quality of life (HR-QOL) [3–10]. A 76% incidence rate of malnutrition among oesophageal cancer patients preoesophagectomy [11], and of 38% postoperatively, indicates the need for dietetic support among this group [12], who suffer with issues relating to

food intake and digestion [10], malabsorption [13], and weight loss [4] posttreatment. Following treatment, 74.2% of oesophageal cancer survivors report needing to modify their eating habits, with 50.8% reporting negative consequences for social functioning [4].

The complex physical, nutritional, and psychosocial rehabilitation needs of people following treatment for UGI cancer require early and ongoing intervention. There is strong evidence that exercise can help manage many of the physical and psychological side effects of cancer treatment, including pain, fatigue, depression, and anxiety, and can improve cardiovascular fitness, physical function, and HR-QOL [14–16]. Furthermore, nutritional counselling is an important aspect of rehabilitation for UGI cancer [11] due to the high incidence of malnutrition and related complications [17].

Multidisciplinary interventions combining exercise, nutritional counselling, and education are an effective way to provide rehabilitative support to people following UGI cancer treatment [18, 19]. The Rehabilitation Strategies for Oesophageal Cancer (ReStOre) multidisciplinary programme [19] is a 12-week intervention that is shown to improve cardiorespiratory fitness and HR-QOL for oesophagogastric cancer survivors, without compromising body composition. ReStOre incorporates group-based resistance and aerobic training and education sessions with one-to-one dietary consultations and support calls delivered by healthcare professionals, including physiotherapists and dietitians; in-person, on-site research studies, based in a cancer specialist hospital in Dublin city, resulted in improved cardiovascular fitness without compromising body composition. Participants reported improved self-confidence and reduced isolation and benefited from building relationships and sharing experiences with other participants [16]. A definitive randomised control trial (RCT) of the ReStOre programme (ReStOre II) was due to begin recruitment in spring 2020 but was put on hold due to the COVID-19 pandemic [20].

Throughout the COVID-19 pandemic, telehealth was used by cancer rehabilitation services to overcome the restrictions placed on meeting in person and exercising in groups indoors [21–23]. Telehealth has been shown to be safe, acceptable, and feasible for delivering rehabilitation to people during and after their cancer treatment [22, 23] and, therefore, was a potential solution for delivering the ReStOre programme, while in-person services were disrupted. However, it was unknown how well a multidisciplinary rehabilitation programme, involving multiple components and a variety of sessions, would adapt to an online delivery model. To investigate the feasibility of an online model of the ReStOre programme, we converted the ReStOre II protocol to a model of online delivery, titled ReStOre@Home [24].

The 12-week ReStOre@Home feasibility study ran from July to October 2021. Feasibility findings, reported by Brennan et al. [25], demonstrate that the online model was convenient and acceptable, had high levels of attendance, and had high levels of participant satisfaction with the telehealth system and mode of delivery. While these findings provide insights into the suitability of a telehealth

intervention for improving postoperative health and well-being among this cohort, less is known about participant experiences of participating in this novel rehabilitation programme. Listening and learning from patient experiences in healthcare is essential to ensuring services are patient-centred and meet service users' needs [26–28]. There are few qualitative studies of multimodal telerehabilitation programmes for cancer survivors, with research in this area primarily focusing on exercise (e.g., [22]) or occupational telerehabilitation (e.g., [29]). Thus, this research is novel in its exploration of the experiences of an MDT programme encompassing exercise, nutrition, and education. It is therefore imperative to understand participants' experiences, perceptions, and attitudes towards RestOre@Home and, more broadly, to better understand their experiences of telehealth MDT cancer rehabilitation interventions.

Qualitative research methods are valuable for exploring and understanding patient experiences [30], and previous qualitative work has helped inform the design and delivery of the ReStOre programme [13]. As the restrictions associated with the COVID-19 pandemic are lifted and the larger ReStOre II RCT resumes, it is important to understand participant experiences of telerehabilitation to evaluate impact and better meet patient needs [31]. This qualitative study therefore aims to explore the experiences and perspectives of participants in a telehealth multidisciplinary cancer rehabilitation programme (ReStOre@Home).

2. Methods

2.1. Study Design. This qualitative descriptive study was underpinned by critical realist philosophical positioning that encourages listening and learning from lived experiences to understand a phenomenon. Semistructured interviews were used to gather detailed descriptions of participants' experiences and perceptions of ReStOre@Home [32]. The 6-step process of reflexive thematic analysis (RTA) outlined by Braun and Clarke was applied [33, 34]. RTA is an analytic method commonly used in qualitative health research [35] and supports interpretivist approaches to qualitative data generation. Its iterative process facilitates exploration of meaning across a dataset to enhance understanding of participants' shared experiences [36]. Findings are reported as per the standards for reporting the qualitative research (SRQR) checklist [37] to ensure transparency in reporting [38].

2.2. Ethical Approval. Ethical approval for this study was granted on August 20, 2020, by the St. James's Hospital (SJH)/Tallaght University Hospital (TUH) Research Ethics Committee. This study was performed in line with the principles of the Declaration of Helsinki.

2.3. Participants and Recruitment. Individuals who had completed curative treatment for oesophageal or gastric cancer and were medically fit to participate in exercise were invited to take part in the ReStOre@Home study. Full details of participant screening, recruitment, and retention for ReStOre@Home are available by Brennan et al. [25]. During

formal recruitment to the ReStOre@Home study, participants were provided with a participant information leaflet and consent form relating to qualitative interviews following the trial. Twelve participants provided informed written consent and were recruited to the study. Of these 12 participants, two withdrew from the trial at an early stage due to ill health and work commitments and were therefore not contacted for follow-up interviews. One participant withdrew from the trial after two weeks due to issues using the required technologies; as their withdrawal was related to the format of the intervention, they were invited to complete an interview at this timepoint to share their experiences using the technologies.

2.4. Intervention. The ReStOre@Home programme is a multidisciplinary and multicomponent telehealth rehabilitation programme for survivors of UGI cancer [24], delivered via video call using the Digital Therapeutics Platform created by Salaso Health Solutions Ltd. (Kerry, Ireland). Adapted from the in-person ReStOre programme [19], it consists of group aerobic and resistance training, education sessions, and one-to-one dietary counselling. Aerobic training is remotely monitored using Polar M200 heart rate monitor watches and the Polar Flow smartphone application (Polar Electro Oy, Kempele, Finland). Programme components are further detailed in the study protocol [24], and quantitative findings are reported by Brennan et al. [25].

2.5. Data Collection. Participants were invited to take part in semistructured interviews scheduled for the week after the intervention finished. Interviews were facilitated by researchers LON or DC using the interview guide informed by the literature (see Table 1). LON is a female physiotherapist, and DC is a female occupational therapist; both have extensive experience in qualitative research methods and cancer survivorship. Participants did not have a preestablished relationship with the facilitator prior to the interview. Only the facilitator and the participant were present for the interviews, which were audio-recorded using Dictaphone with the participant's consent. Audio files were uploaded onto a protected server that only members of the research team had access to and deleted from Dictaphone.

2.6. Data Analysis. Transcripts were transcribed verbatim, anonymized, and analysed independently by three researchers (AOB, LB, and LON). AOB is a research assistant with an undergraduate and postgraduate degree in psychology, and LB is a Research Fellow and Chartered Physiotherapist; both are experienced qualitative researchers, and LB has further research and clinical experience in cancer survivorship. Analysis was carried out using the RTA process outlined in Figure 1. First, AOB, LB, and LON engaged in data familiarisation by reading and rereading transcripts and noting down initial thoughts. Second, AOB and LB began to independently code the data by systematically reviewing the entire dataset to identify distinct quotes which were insightful, informative, and related to the research aims. They then generated the initial

TABLE 1: ReStOre@Home interview guide.

<i>Questions related to exercise programme, education, and dietetics input</i>
Did you find this programme beneficial?
How has the programme impacted?
...Your recovery from your cancer treatment?
...Your fitness?
...Your eating and nutrition?
...Your nutrition-related symptoms? For example, nausea, appetite, and dumping syndrome
...How you manage your daily activities and routines?
...Your mental health and well-being?
...Your energy levels/level of fatigue?
Have your family and/or friends noticed any difference since you participated in the programme?
<i>Structure of programme</i>
Can you tell me about your overall impressions of the programme? Prompt: What did you enjoy? What did you not enjoy?
What is your opinion on the structure of the programme? Prompt: the length, the content, and the schedule?
What changes would you make to improve the programme better in the future? Prompt: educational components? Nutritional components? Physical activity components?
<i>Telehealth questions</i>
What is your opinion on doing ReStOre@Home online?
Were there benefits of doing it online? Were there disadvantages?
Was doing ReStOre@Home online easier or more difficult than you imagined?
What did you think of the Salaso system? Prompt: What did you like about it? What did you dislike about it?
What changes would you recommend to make this system better?
What is your opinion of the heart rate monitor watches?
Do you have any other feedback about ReStOre@Home that you would like to give?

codes for the whole dataset, i.e., words and phrases that captured the meaning and context of one or several quotes. AOB and LB met to review and discuss the preliminary analysis and jointly conducted a second iteration of coding, which involved developing, merging, or eliminating codes to best identify patterns of meaning across the data related to the research question. Codes were grouped together to develop preliminary themes, a process visually mapped in Figure 1.

Next, all researchers (AOB, LB, and LON) met to review and discuss the codes and preliminary themes. Through discussion and reflection, they refined and consolidated the themes and created theme names; overlapping themes were combined until themes were deemed discrete. Final codes and themes were discussed to consolidate perspectives from all researchers.

The reflective aspect of RTA allowed us to identify and explore our perspectives on the dataset. Using multiple coders encouraged further reflection, exploration of assumptions, and collaborative interpretation of the data [34, 39], with the introduction of an independent coder with a background in health psychology (AOB) further enabling multidisciplinary perspectives in the analysis. The final phase of RTA involved the selection of key quotes to represent each theme and the discussion of findings in relation to the research question and relevant literature.

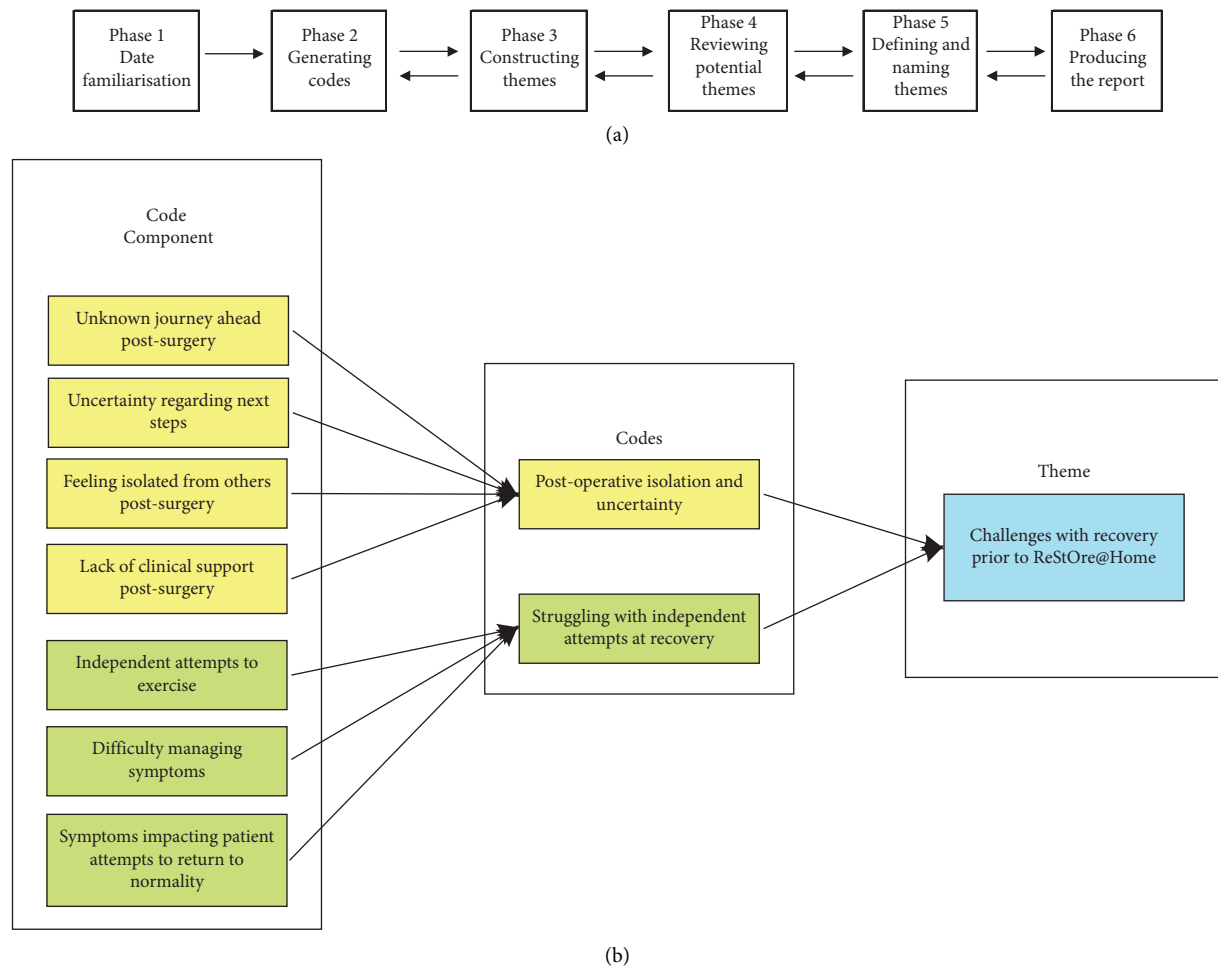


FIGURE 1: Process of reflexive thematic analysis (a) as developed by Braun and Clarke [33] with an example of visual mapping of codes to generate a theme (b).

3. Results

Ten participants took part in semistructured interviews. Interviews were performed over the phone ($n = 3$) and in person ($n = 7$) at the SJH Clinical Research Facility and lasted between 15 and 37 minutes. Participant group characteristics and individual characteristics are detailed in Table 2. The male-dominated sample in this study reflects the demographics of oesophageal cancer.

Reflexive thematic analysis of the interview transcripts generated three overarching themes, which are seen with their corresponding subthemes and codes in Table 3.

3.1. Theme 1: ReStOre@Home Impacted Psychosocial and Physical Needs by Addressing a Broad and Meaningful Gap in Services

3.1.1. Challenges with Recovery Prior to ReStOre@Home. Participants described feeling uncertain about how to self-manage their recovery upon discharge from hospital and acute clinical care. Despite receiving guidance from healthcare professionals during the acute period of care,

participants reflected that they did not feel equipped to independently manage their recovery:

“It’s sort of “thanks very much, good luck, you’re on your own again”” P02.

Feelings of loneliness and isolation were commonly experienced by many participants:

“Before the programme you feel you’re out there on your own... after (the surgery), nothing... and then you go home, and that’s it-“what do I do now?” So there was a bit of that loneliness” P09.

Participants found it difficult to manage symptoms that were impacting their return to normal day-to-day activities (e.g., stomach pain, fatigue). Despite wanting to return to normal routines, participants struggled to adapt:

“I said, ok, time to start getting back into the swing of things. There were a few leaves in the garden, and I tried to sweep them up. After a minute I had to tell my wife I’m going to bed, I can’t, I’m exhausted. And I was exhausted” P06.

TABLE 2: Participant ($N=10$) group characteristics, technology access and literacy.

Sex (n)		Value		
Male		9		
Female		1		
<i>Cancer type (n)</i>				
Oesophageal		8		
Gastric and lung		1		
Gastro-oesophageal junction		1		
<i>Neoadjuvant treatment (n)</i>				
Adjuvant treatment (n)		3		
Age (years) (\bar{x} (SD, range))		67 (6.68, 58–76)		
Time since surgery (months) (\bar{x} (SD, range))		10 (3.7, 5–17)		
Hospital length of stay (days) (\bar{x} (SD, range))		24 (22.29, 6–79)		
<i>Technology access and literacy (n)</i>				
Access to the broadband in own home		9		
Access to a suitable device for video calls		8		
Independently operated video calls		7		
Independently operated watch		7		
<i>Participant ID</i>	<i>Sex</i>	<i>Age</i>	<i>Time since surgery (months)</i>	<i>Ability to independently operate video calls</i>
Participant01	Male	58	13	Yes
Participant02	Male	58	11	Yes
Participant04	Male	74	7	No
Participant05	Male	72	13	No
Participant06	Male	76	7	Yes
Participant07	Male	69	10	Yes
Participant09	Male	61	11	Yes
Participant10	Female	65	7	No
Participant11	Male	63	17	Yes
Participant12	Male	72	5	Yes

Note. The criteria of “ability to independently operate video calls” are used as an indicator of participants’ digital skills.

3.1.2. Feelings of Connectedness with Peers and Professionals.

The virtual programme was a safe opportunity to meet others with shared symptoms and experiences of recovering from UGI cancer. This was particularly felt during the group-based education sessions, where participants discussed their experiences of recovery:

“I think you knew that you were meeting people of your own ilk, in the same situation or similar situation. And we all had the same common denominator, which was to get yourself better... I found, for me, it kept me connected... You know you’re not alone” P07.

The group video calls facilitated rapport and relationships among the group, creating a sense of community and comradeship—an antidote to the loneliness and isolation experienced by participants prior to the programme:

“I used to enjoy the exercise and also the little chat before the start. The lads would be there. And it’s nice to hear their side” P10.

The importance of compassionate care in cancer recovery was emphasized by participants. Participants felt supported by, connected to, and cared for by the clinical staff facilitating the programme, whom they could speak with openly and intimately:

“I think [researcher]) has a lovely way about her. Engaging, pushing you on, and communicating, which, besides all her professional skills, I think that really helped. That’s what I mean about the caring element of it” P11.

3.1.3. Personalised Care Meeting and Supporting Individual Needs.

Participants viewed ReStOre@Home as a programme providing continuity of care. For many, it addressed the service gap between active treatment and the post-treatment survivorship period:

“The feeling that there was a connection still with the hospital was a big thing, that you were not just running out the door and kind of forgotten about... You felt you had a connection still with the clinical team” P12.

After surgery, many participants were nervous about engaging in activities or services without clearance from clinical specialists. Participants were grateful for a programme that was designed and tailored specifically for those living with and beyond UGI cancer with a specialist clinical research team familiar with their unique symptoms and support needs:

“I was kind of a bit anxious about going to a physio myself, and having to explain things again and again. Would they do more damage than anything? So it was

TABLE 3: Overarching themes, subthemes, and codes used to categorize the data.

Overarching themes	Subthemes	Codes
1 ReStOre@Home impacted psychosocial and physical needs by addressing a broad and meaningful gap in services	Challenges with recovery prior to ReStOre@Home	Postoperative isolation and uncertainty struggling with independent attempts at recovery before ReStOre@Home
	Feelings of connectedness with peers and professionals	Connecting to others with shared experiences of cancer Sense of community on virtual calls
	Personalised care meeting and supporting individual needs	Role of compassionate care in cancer recovery A programme specific to my cancer personalised to meet my individual needs and goals An integrated model of care
	Improved physical and mental health	Improved fitness Improved mental health
2 Paving a pathway towards prosperity	Returning to meaningful activities	Improved physical and mental health Enhanced understanding of how best to manage symptoms Building confidence in one's physical abilities Return to participating in meaningful activities Feeling equipped to manage the recovery journey after ReStOre@Home
	Experiences of telehealth experiences with hardware and software	Experiences of telehealth experiences with hardware and software Technology-focused training Hybrid option for future programmes
3 Contrasting experiences with using technology		

great when this popped up, because they knew my history, and it was geared towards people who had surgeries like me” P09.

Additionally, the clinical team could personalise the programme to each participant’s needs, which was appreciated by P09:

“I hurt my back just as the programme was getting going. . . The guys were able to help me with that. They took some exercises off that would have been detrimental to the back, we did it that way, it was great” P09.

The personalised programme inspired positive behaviour change among participants, who hope to maintain these behaviours outside of the programme:

“I got a huge amount out of my one-to-one today. I know where I’m going, I’ve something positive to work on. And I hope to maximise that” P04.

Some participants requested that the clinical team provide long-term follow-up sessions to encourage participants to continue progressing towards a future goal after the programme finished and facilitate the feeling of being cared for and supported despite the programme ending:

“I just think it is important that there’s a follow-up. . . Even a phone call, just to see how you’re getting on. If there’s another programme going on, maybe people would like to go on that. Because you’ve kick-started people at this, they’re in drive at the moment, there’s no point putting them back in parking” P02.

3.2. Theme 2: Paving a Pathway towards Prosperity

3.2.1. *Improved Physical and Mental Health.* After completing ReStOre@Home, participants described having improved fitness and strength, and feeling more energised and less fatigued:

“Energy levels have improved and fatigue levels have reduced, definitely. It might be 75% of preoperation levels before the programme and I would say I’m up to 90–95% of energy levels now” P01.

As they became stronger, participants were motivated to physically push themselves further than before:

“They said they wanted my heart rate up, and that was it, I gave them enough of heart rate up, running around the park. . . They were trying to make my heart stronger, and they did” P05.

Participants enjoyed attending and completing the exercise classes and described both short- and long-term benefits to their mental well-being. P05 spoke enthusiastically about the walking programme:

“It wasn’t that I had to do it, I wanted to do it. I loved doing it.” P06 shared the “feel-good factor” he got from resistance training: “I always felt good after.”

The combination of exercise, nutrition, and education improved overall well-being, as participants were equipped with knowledge and tools to enhance self-management of their symptoms during recovery:

“I built up confidence. I’m very confident again now. I don’t worry about anything much. Things that would have worried me one time doesn’t bother me anymore” P05.

Participants described feeling an improved sense of purpose and were motivated to take important next steps in their recovery journey:

“I have a very clear roadmap or direction about what I need to do. . . that peace of mind” P11.

As participants became more aware of the physical and psychological factors that impacted their recovery, a suggestion arose for future ReStOre programmes to include education sessions tailored towards understanding these changes and the psychological supports that they could access outside of the hospital:

“I think it might be worth explaining again what change has happened to your body in simple English. . . your stomach and your diaphragm. . . Maybe I’m wrong, I’m not so sure everybody fully understood that” P11.

“A little bit more on psychology and the availability of counselling. . . that could be worthwhile” P01.

3.2.2. *Returning to Meaningful Activities.* As participants became more comfortable exercising independently, they felt more confident in their physical abilities and capabilities. The skills and abilities developed throughout the programme helped participants return to meaningful activities and participate more fully in daily life:

“It gave me more confidence, because when you’re out of the hospital, they say “take it easy, sit down” and I found that wasn’t necessarily the right thing to do. I found it’s no harm to do a bit of exercise and push yourself a little bit” P12.

Several participants applied newfound self-management advice to effectively manage nutrition-related symptoms. P11 shared how dumping syndrome was negatively impacting his daily life and that symptoms improved markedly throughout the programme:

“Three times a week I had some sort of incident, a bad day. The repercussions of that is that you’re feeling weak, you don’t want to feel like going walking as much, your nutrients are gone, you’re tired. . . It’s once a week now, and even it’s a lot less in severity” P11.

Improved symptom management equipped participants to return to participating in professional, social, and self-care activities:

“I went back to work. Not full time, but part time, and that was brilliant” P05.

“I’d be more proactive in doing things in the house. I used to cook a lot, not particularly exciting dishes. I started to do [cooking] in the last two or three weeks” P06.

3.3. Theme 3: Contrasting Experiences with Using Technology. Almost all participants provided strong positive feedback for the online model of care, reporting that it reduced commute times, increased accessibility for those outside of Dublin, and kept participants safe from exposure to the COVID-19 virus:

“For me, everything remote is good. I think most patients would absolutely prefer the logistics of doing it at home. . . I think it makes it feasible” P01.

However, telehealth was not appropriate for every participant. Participant04 reluctantly withdrew from the study as they found the telehealth delivery “just wasn’t working for me”:

“I don’t think it’s going to suit my situation because my big problem is our broadband. . . I think it’s a nonrunner for me” P04.

Participants with less experience using technology were apprehensive about using digital tools, such as the heart rate monitor watch and the tablet. Participant04 described themselves as “not computer literate,” and therefore, the technology was “very difficult to handle.” Of those that found the telehealth model an acceptable mode of delivery but struggled using the technologies, support from family was essential to completing the virtual calls during the programme:

“My daughter would log in when the time came for you to join . . . I didn’t touch, I just let her, I could knock the whole bloody thing over because I don’t know what I’m doing” P10.

There were contrasting experiences with the heart rate monitor watches; some participants found it difficult to use the new device, while others found the technology useful for tracking progress and meeting goals:

“The polar watches are a bit clunky, to be honest, a bit old, you have to do a lot of pressing, you can’t do it on-screen” P09.

“I kind of got used to using the watch all the time to be honest with you. It was very good for the walks, it was simple to use. . . It was very user-friendly” P12.

For future programmes, some participants recommended including a technology-focused training session at the programme onset, to familiarise participants with the technologies and to build self-confidence in using the technologies independently:

“An education session on the watch should be included. . .just how to use that, to give tips and tricks and that kind of stuff” P09.

Some participants missed the social aspect of an in-person programme and expressed desire for future programmes to follow a hybrid model, with some online and some in-person sessions. This would provide participants with the opportunity to physically meet others on the programme and strengthen relationships forged online:

“Try and have it so that after the first couple of weeks, everybody comes in and meets” P02.

Importantly, those who found telehealth delivery a barrier to participation in the programme would be “prepared to try” (P04) the in-person ReStOre programme.

4. Discussion

This study explored the experiences and perspectives of UGI cancer survivors who took part in the ReStOre@Home multidisciplinary and multicomponent virtual rehabilitation programme [25]. Reflective thematic analysis of the interview transcripts generated three overarching themes: (1) ReStOre@Home impacts psychosocial and physical needs by addressing a broad and meaningful gap in services, (2) paving a pathway towards prosperity, and (3) contrasting experiences with using technology.

The postoperative cancer recovery journey was identified as an isolating period by participants. Previous qualitative research exploring oesophageal cancer survivors’ experiences of navigating the cancer recovery journey has found that this group struggles to identify formal support services tailored to their particular needs [13]. Loneliness is indeed common among people with and after UGI cancer, who may struggle to meet others with similar experiences [13, 16]. Participants of the previous in-person ReStOre programme described an open and fun atmosphere among the group, developing meaningful relationships with others with shared experiences of cancer [16]. A key finding of the current study was that, similarly, participants described the online programme as a source of social support, connecting them with other UGI cancer survivors at a time when it was difficult to meet others. A systematic review and narrative synthesis of cancer survivors’ experiences of telehealth found that participants in 9/22 studies deemed telehealth an impersonal medium that lacked physical presence [31]. It is possible that our findings contrast with previous literature suggesting that telehealth is an impersonal mode of delivery [31, 40] as this study was carried out during COVID-19, when social distancing

guidelines led to an inability to meet and connect with others [41]. The social benefits of this programme were therefore heightened as people were deprived of social contact and connectedness during this time. ReStOre@Home participants forged personal connections online; they similarly shared a desire for an in-person element to the programme, at the beginning or end, to consolidate online connections.

Some findings in the broader literature suggest that patients may perceive telehealth as inhibiting meaningful patient-practitioner interactions [42–44]. Dennett et al. [22] describe the importance of personal connections between staff and patients, which can be disrupted by a telehealth programme. ReStOre@Home participants report receiving meaningful and compassionate care from clinicians through video calls; this may have been aided by the comparatively high frequency of contact with staff and other participants in this multicomponent programme. Crucially, much of the literature in this field reports on telehealth interventions delivered during the COVID-19 pandemic, when participants were already experiencing considerable isolation due to lockdowns. Social interaction and connection with those attending or delivering an online physical rehabilitation programme have been identified as important to those less receptive to using technology [45]. Offering a hybrid approach provides increased choice for those who may benefit from the flexibility and conveniences of telehealth while allowing for an in-person component when needed [46–48]. For those living with and beyond cancer, telehealth was a highly satisfactory approach to delivering care and is an acceptable option postpandemic [49]. Future studies conducted during a postpandemic period may better explore the impact and importance of social connectedness for participants in telehealth rehabilitation alongside measures of attendance, satisfaction, and physical activity.

Working with a patient group with minimal rehabilitation support may explain why ReStOre@Home was highly valued by participants, as it is a programme designed and developed to specifically support the needs of people recovering from UGI cancer. Furthermore, it successfully assisted in their return to meaningful activities. This promising finding aligns with previous research describing exercise only telerehabilitation as “a good stepping stone” in supporting participants in their return to normal physical activity participation [50]. The benefits of the telehealth model can be classified using the health components of the World Health Organisation’s International Classification of Functioning (ICF) [51], a framework conceptualising health and disability and their impact on functioning. Core dimensions of the framework include bodily function and activity/participation, two domains that are heavily impaired during postoperative recovery [3, 9]. Socialising is a challenging aspect of postoperative recovery due to physical impairment and difficulty managing symptoms [9, 13]. With a multidisciplinary team supporting their individual needs, participants of this multidisciplinary telehealth programme successfully returned to engaging in physical activity as well as social, personal, and professional activities. Participants described improved functioning, participation in meaningful activities, and better management of activities of daily living at the end of their 12 weeks.

While virtual delivery of the rehabilitation programme was an acceptable and enjoyable experience for the majority of participants, some struggled with using the digital equipment. Poor digital literacy is a barrier to the successful implementation of telehealth [52], and assistance from family members was essential to enable some participants to successfully use the digital tools. While digital health can improve access to cancer care, researchers and healthcare practitioners must make concerted efforts to include people with all levels of skill through education, targeted design, and inclusive implementation strategies [40, 53]. Acting on participant feedback regarding digital equipment and applying user-friendly, intuitive design can improve participant uptake and adherence to tele-rehabilitation [54]. Future hybrid programmes should include an education session on how to use the digital equipment before beginning the rehabilitation programme to help build participant confidence in their digital skills. Additionally, future programmes could screen the participant’s level of digital skills through their ownership and use of a smart device [55, 56] rather than access, as this is a strong indicator of participant willingness to use telerehabilitation [55].

4.1. Strengths and Limitations. A strength of this qualitative study is the methodological rigor, which was achieved by using interview facilitators that were not associated with the trial delivery, allowing for an open and honest dialogue between interviewers and interviewees, as well as following the RTA process, using multiple, experienced researchers, and adhering to SRQR guidelines [36]. The participants represented a wide age range within this cancer type and provided insight into their postoperative recovery journey at multiple timepoints. Additionally, variation in participants’ digital literacy can also be seen as a strength of this study, as those with fewer digital skills and who are older are less likely to participate in research exploring digital healthcare; thus, this sample of participants is less represented in healthcare research [57, 58]. Study limitations include the absence of interview data from two participants who did not complete the rehabilitation programme and the lack of longitudinal qualitative data. Both limitations should be addressed in future protocols to better understand the long-term impact of the programme, the barriers and facilitators impacting participant engagement, and the gathering of more critical feedback of the trial.

4.2. Implications for Research and Practice. This research demonstrates a general acceptability of and satisfaction with the telehealth delivery of a multicomponent cancer rehabilitation programme while also highlighting some key recommendations for future programmes. Importantly, virtual delivery of the programme met a holistic range of participant needs in a cohort with broadband internet access and adequate digital skills. A future cancer rehabilitation programme should consider including some aspects of in-person care within the intervention and thorough education sessions around any technologies used. Based on the current findings and those from our feasibility study [25], the next wave of ReStOre (ReStOre II) will build on the findings of this research and will offer both a fully in-person

programme, as well as a hybrid model, which involves a mixture of in-person and online sessions, to meet all patient needs.

The importance of peer support, social interaction, and relationships among those participating in cancer rehabilitation programmes is demonstrated in these findings. Future research could explore the importance of relationships forged during in-person specialist cancer rehabilitation programmes compared to those forged online, to investigate the impact on participant experiences.

5. Conclusions

This study explored the experiences and perspectives of UGI cancer survivors who took part in ReStOre@Home, a telehealth model of the ReStOre 12-week multidisciplinary rehabilitation programme. Participants experienced improved mental and physical well-being and achieved successful returns to participation in professional, social, and self-care activities. The telehealth model of delivery was found to be acceptable to participants, but some relied on family assistance to utilise the technologies. Participants benefited from meeting other UGI cancer survivors and sharing experiences of treatment and recovery, and they were also able to develop meaningful relationships with staff. Future research should explore factors influencing participant attrition to enhance the accessibility of ReStOre and maximise engagement and should include a longitudinal component to explore the long-term impact of the programme on participant health and well-being.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request. Repository name: SRQR checklist for “Participant experiences of a telehealth multidisciplinary cancer rehabilitation programme: qualitative findings from the ReStOre@Home feasibility study” (https://osf.io/z9e5p/?view_only=9d4fb41a3264482cac657cce69266589).

Disclosure

The HRB has no direct role in the design, conduct, or analysis of this research.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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References

- [1] Z. D. Chen, P. F. Zhang, H. Q. Xi, B. Wei, L. Chen, and Y. Tang, “Recent advances in the diagnosis, staging, treatment, and prognosis of advanced gastric cancer: a literature review,” *Frontiers of Medicine*, vol. 8, Article ID 744839, 2021.
- [2] S. Law, D. L. Kwong, K. F. Kwok et al., “Improvement in treatment results and long-term survival of patients with esophageal cancer: impact of chemoradiation and change in treatment strategy,” *Annals of Surgery*, vol. 238, no. 3, pp. 339–348, 2003.
- [3] A. P. Barbour, P. Lagergren, R. Hughes, D. Alderson, C. P. Barham, and J. M. Blazeby, “Health-related quality of life among patients with adenocarcinoma of the gastro-oesophageal junction treated by gastrectomy or oesophagectomy,” *British Journal of Surgery*, vol. 95, no. 1, pp. 80–84, 2007.
- [4] S. R. Markar, G. Zaninotto, C. Castoro et al., “Lasting symptoms after esophageal resection (LASER): European multicenter cross-sectional study,” *Annals of Surgery*, vol. 275, no. 2, pp. e392–e400, 2022.
- [5] A. Schandl, A. Johar, P. Anandavivelan, K. Vikström, K. Mälberg, and P. Lagergren, “Patient-reported outcomes 1 year after oesophageal cancer surgery,” *Acta Oncologica*, vol. 59, no. 6, pp. 613–619, 2020.
- [6] L. O’Neill, J. Moran, E. M. Guinan, J. V. Reynolds, and J. Hussey, “Physical decline and its implications in the management of oesophageal and gastric cancer: a systematic review,” *Journal of Cancer Survivorship*, vol. 12, no. 4, pp. 601–618, 2018.
- [7] L. Graham-Wisener, J. Hanna, L. Collins, and M. Dempster, “Psychological adjustment in patients post-curative treatment for oesophageal cancer: a longitudinal interview study,” *Psychology and Health*, vol. 34, no. 8, pp. 901–921, 2019.
- [8] G. Bouras, S. R. Markar, E. M. Burns et al., “The psychological impact of symptoms related to esophagogastric cancer resection presenting in primary care: a national linked database study,” *European Journal of Surgical Oncology*, vol. 43, no. 2, pp. 454–460, 2017.
- [9] L. O’Neill, A. E. Bennett, E. Guinan, J. V. Reynolds, and J. Hussey, “Physical recovery in the first six months following oesophago-gastric cancer surgery. Identifying rehabilitative needs: a qualitative interview study,” *Disability & Rehabilitation*, vol. 43, no. 10, pp. 1396–1403, 2021.
- [10] E. M. Verschuur, E. W. Steyerberg, E. J. Kuipers et al., “Experiences and expectations of patients after oesophageal cancer surgery: an explorative study,” *European Journal of Cancer Care*, vol. 15, no. 4, pp. 324–332, 2006.
- [11] J. Cao, H. Xu, W. Li et al., “Nutritional assessment and risk factors associated to malnutrition in patients with esophageal cancer,” *Current Problems in Cancer*, vol. 45, no. 1, Article ID 100638, 2021.
- [12] S. Bennett, C. F. Murphy, M. Fanning, J. V. Reynolds, S. L. Doyle, and C. L. Donohoe, “The impact of nutrition and gastrointestinal symptoms on health-related quality of life in survivorship after oesophageal cancer surgery,” *Clinical Nutrition Open Science*, vol. 41, pp. 44–61, 2022.

- [13] A. E. Bennett, L. O'Neill, D. Connolly et al., "Perspectives of esophageal cancer survivors on diagnosis, treatment, and recovery," *Cancers*, vol. 13, no. 1, p. 100, 2020.
- [14] K. M. Mustian, C. M. Alfano, C. Heckler et al., "Comparison of pharmaceutical, psychological, and exercise treatments for cancer-related fatigue," *JAMA Oncology*, vol. 3, no. 7, p. 961, 2017.
- [15] K. L. Campbell, K. M. Winters-Stone, J. Wiskemann et al., "Exercise guidelines for cancer survivors: consensus statement from international multidisciplinary roundtable," *Medicine & Science in Sports & Exercise*, vol. 51, no. 11, pp. 2375–2390, 2019.
- [16] A. E. Bennett, L. O'Neill, D. Connolly et al., "Patient experiences of a physiotherapy-led multidisciplinary rehabilitative intervention after successful treatment for oesophago-gastric cancer," *Supportive Care in Cancer*, vol. 26, no. 8, pp. 2615–2623, 2018.
- [17] E. M. Grace, C. Shaw, A. Lalji, K. Mohammed, H. J. N. Andreyev, and K. Whelan, "Nutritional status, the development and persistence of malnutrition and dietary intake in oesophago-gastric cancer: a longitudinal cohort study," *Journal of Human Nutrition and Dietetics*, vol. 31, no. 6, pp. 785–792, 2018.
- [18] F. Sadeghi, D. Mockler, E. M. Guinan, J. Hussey, and S. L. Doyle, "The effectiveness of nutrition interventions combined with exercise in upper gastrointestinal cancers: a systematic review," *Nutrients*, vol. 13, no. 8, p. 2842, 2021.
- [19] L. O'Neill, E. Guinan, S. L. Doyle et al., "Rehabilitation strategies following esophageal cancer (the ReStOre trial): a feasibility study," *Diseases of the Esophagus*, vol. 30, no. 5, pp. 1–8, 2017.
- [20] L. O'Neill, E. Guinan, S. Doyle et al., "Rehabilitation strategies following oesophagogastric and Hepatopancreaticobiliary cancer (ReStOre II): a protocol for a randomized controlled trial," *BMC Cancer*, vol. 20, no. 1, Article ID 415, 2020.
- [21] K. A. Bland, A. Bigaran, K. L. Campbell, M. Trevaskis, and E. M. Zopf, "Exercising in isolation? The role of telehealth in exercise oncology during the COVID-19 pandemic and beyond," *Physical Therapy*, vol. 100, no. 10, pp. 1713–1716, 2020.
- [22] A. Dennett, K. E. Harding, J. Reimert, R. Morris, P. Parente, and N. F. Taylor, "Telerehabilitation's safety, feasibility, and exercise uptake in cancer survivors: process evaluation," *JMIR Cancer*, vol. 7, no. 4, Article ID e33130, 2021.
- [23] F. Wu, O. Rotimi, R. Laza-Cagigas, and T. Rampal, "The feasibility and effects of a telehealth-delivered home-based prehabilitation program for cancer patients during the pandemic," *Current Oncology*, vol. 28, no. 3, pp. 2248–2259, 2021.
- [24] L. O'Neill, E. Guinan, S. L. Doyle et al., "ReStOre@Home: feasibility study of a virtually delivered 12-week multidisciplinary rehabilitation programme for survivors of upper gastrointestinal (UGI) cancer- study protocol," *HRB Open Research*, vol. 3, p. 86, 2020.
- [25] L. Brennan, F. Sadeghi, L. O'Neill et al., "Telehealth delivery of a multi-disciplinary rehabilitation programme for upper gastro-intestinal cancer: ReStOre@Home feasibility study," *Cancers*, vol. 14, no. 11, p. 2707, 2022.
- [26] M. Wensing and G. Elwyn, "Improving the quality of health care: methods for incorporating patients' views in health care," *BMJ*, vol. 326, no. 7394, pp. 877–879, 2003.
- [27] P. M. Mullen, "Public involvement in health care priority setting: an overview of methods for eliciting values," *Health Expectations*, vol. 2, no. 4, pp. 222–234, 1999.
- [28] J. Duarte and A. Guerra, "User-centered healthcare design," *Procedia Computer Science*, vol. 14, pp. 189–197, 2012.
- [29] K. Loubani, N. Schreuer, and R. Kizony, "Telerehabilitation for managing daily participation among breast cancer survivors during COVID-19: a feasibility study," *Journal of Clinical Medicine*, vol. 11, no. 4, p. 1022, 2022.
- [30] V. Braun and V. Clarke, "Novel insights into patients' lifeworlds: the value of qualitative research," *The Lancet Psychiatry*, vol. 6, no. 9, pp. 720–721, 2019.
- [31] A. Cox, G. Lucas, A. Marcu et al., "Cancer survivors' experience with telehealth: a systematic review and thematic synthesis," *Journal of Medical Internet Research*, vol. 19, no. 1, p. e11, 2017.
- [32] H. Kim, J. S. Sefcik, and C. Bradway, "Characteristics of qualitative descriptive studies: a systematic review," *Research in Nursing & Health*, vol. 40, no. 1, pp. 23–42, 2017.
- [33] V. Braun and V. Clarke, "Using thematic analysis in psychology," *Qualitative Research in Psychology*, vol. 3, no. 2, pp. 77–101, 2006.
- [34] V. Braun and V. Clarke, "One size fits all? What counts as quality practice in (reflexive) thematic analysis?" *Qualitative Research in Psychology*, vol. 18, no. 3, pp. 328–352, 2021.
- [35] K. A. Campbell, E. Orr, P. Durepos et al., "Reflexive thematic analysis for applied qualitative health research," *Qualitative Report*, vol. 26, no. 6, pp. 2011–2028, 2021.
- [36] V. Braun and V. Clarke, *Thematic Analysis*, American Psychological Association, Washington, DC, USA, 2012.
- [37] B. C. O'Brien, I. Harris, T. Beckman, D. Reed, and D. Cook, "Standards for reporting qualitative research," *Academic Medicine*, vol. 89, no. 9, pp. 1245–1251, 2014.
- [38] L. A. Dossett, A. H. Kaji, and A. Cochran, "SRQR and COREQ reporting guidelines for qualitative studies," *JAMA surgery*, vol. 156, no. 9, pp. 875–876, 2021.
- [39] D. Byrne, "A worked example of Braun and Clarke's approach to reflexive thematic analysis," *Quality and Quantity*, vol. 56, no. 3, pp. 1391–1412, 2022.
- [40] N. Q. Pang, J. Lau, S. Y. Fong, C. Y. H. Wong, and K. K. Tan, "Telemedicine acceptance among older adult patients with cancer: scoping review," *Journal of Medical Internet Research*, vol. 24, no. 3, Article ID e28724, 2022.
- [41] WHO, *Director-General's Opening Remarks at the media Briefing on COVID-19*, WHO, Geneva, Switzerland, 2020.
- [42] H. S. Gordon, P. Solanki, B. G. Bokhour, and R. K. Gopal, "I'm not feeling like I'm part of the conversation" patients' perspectives on communicating in clinical video telehealth visits," *Journal of General Internal Medicine*, vol. 35, no. 6, pp. 1751–1758, 2020.
- [43] M. Sakumoto and S. Krug, "Enhancing digital empathy and reimagining the telehealth experience," *Telehealth and Medicine Today*, vol. 6, no. 4, 2021.
- [44] C. J. Barton, A. M. Ezzat, M. Merolli et al., "It's second best": a mixed-methods evaluation of the experiences and attitudes of people with musculoskeletal pain towards physiotherapist delivered telehealth during the COVID-19 pandemic," *Musculoskeletal Science and Practice*, vol. 58, Article ID 102500, 2022.
- [45] S. Rossen, L. Kayser, J. Vibe-Petersen, J. F. Christensen, and M. Ried-Larsen, "Cancer survivors' receptiveness to digital technology-supported physical rehabilitation and the implications for design: qualitative study," *Journal of Medical Internet Research*, vol. 22, no. 8, Article ID e15335, 2020.
- [46] M. A. Cottrell and T. G. Russell, "Telehealth for musculoskeletal physiotherapy," *Musculoskeletal Science and Practice*, vol. 48, Article ID 102193, 2020.
- [47] J. Wen, S. Milne, and D. D. Sin, "Pulmonary rehabilitation in a postcoronavirus disease 2019 world: feasibility, challenges,

- and solutions,” *Current Opinion in Pulmonary Medicine*, vol. 28, no. 2, pp. 152–161, 2022.
- [48] H. M. Dalal, P. Doherty, S. T. J. McDonagh, K. Paul, and R. S. Taylor, “Virtual and in-person cardiac rehabilitation,” *Bmj*, vol. 373, p. n1270, 2021.
- [49] E. Andrews, K. Berghofer, J. Long, A. Prescott, and M. Caboral-Stevens, “Satisfaction with the use of telehealth during COVID-19: an integrative review,” *International Journal of Nursing Studies Advances*, vol. 2, Article ID 100008, 2020.
- [50] A. M. Dennett, C. L. Peiris, N. F. Taylor, M. S. Reed, and N. Shields, “‘A good stepping stone to normality’: a qualitative study of cancer survivors’ experiences of an exercise-based rehabilitation program,” *Supportive Care in Cancer*, vol. 27, no. 5, pp. 1729–1736, 2019.
- [51] W. H. Organization, *International Classification of Functioning, Disability, and Health: Children & Youth Version: ICF-CY*, World Health Organization, Geneva, Switzerland, 2007.
- [52] N. D. Eze, C. Mateus, and T. Cravo Oliveira Hashiguchi, “Telemedicine in the OECD: an umbrella review of clinical and cost-effectiveness, patient experience and implementation,” *PLoS One*, vol. 15, no. 8, Article ID e0237585, 2020.
- [53] E. Kemp, J. Trigg, L. Beatty et al., “Health literacy, digital health literacy and the implementation of digital health technologies in cancer care: the need for a strategic approach,” *Health Promotion Journal of Australia*, vol. 32, no. S1, pp. 104–114, 2021.
- [54] S. Hasnan, S. Aggarwal, L. Mohammadi, and B. Koczwara, “Barriers and enablers of uptake and adherence to digital health interventions in older patients with cancer: a systematic review,” *Journal of Geriatric Oncology*, vol. 13, no. 8, pp. 1084–1091, 2022.
- [55] Z. Seidman, R. McNamara, S. Wootton et al., “People attending pulmonary rehabilitation demonstrate a substantial engagement with technology and willingness to use tele-rehabilitation: a survey,” *Journal of Physiotherapy*, vol. 63, no. 3, pp. 175–181, 2017.
- [56] B. C. Brocki, J. J. Andreasen, J. Aaroe, J. Andreasen, and C. B. Thorup, “Exercise-based real-time telerehabilitation for older adult patients recently discharged after transcatheter aortic valve implantation: mixed methods feasibility study,” *JMIR Rehabilitation and Assistive Technologies*, vol. 9, no. 2, Article ID e34819, 2022.
- [57] A. Poli, S. Kelfve, and A. Motel-Klingebiel, “A research tool for measuring non-participation of older people in research on digital health,” *BMC Public Health*, vol. 19, no. 1, p. 1487, 2019.
- [58] R. König, A. Seifert, and M. Doh, “Internet use among older Europeans: an analysis based on SHARE data,” *Universal Access in the Information Society*, vol. 17, no. 3, pp. 621–633, 2018.