MACH
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Project title: Exploration of motivation and experience with a web-based cognitive rehabilitation intervention (eReCog) amongst people with aggressive lymphoma: a qualitative study

Report:

Background

Cancer-related cognitive impairment (CRCI), a common side-effect of cancer and its treatment, is characterised by difficulties in memory, attention, and executive function. While CRCI is well documented in solid tumour populations, such as those with breast cancer,[1,2] evidence indicates that people with haematological malignancies, including those with aggressive lymphoma, experience comparable patterns of impairment.[3-5] For example, survivors of aggressive lymphoma have demonstrated worse performance on measures of memory, executive function, and processing speed compared to healthy controls.[6-7] While no pharmacological treatments to date have demonstrated efficacy,[8-10] behavioural interventions, particularly cognitive rehabilitation, have emerged as the most promising approach.[11,12] Cognitive rehabilitation typically involves a combination of psychoeducation, metacognitive strategy training, and cognitive exercises targeting memory, attention, and executive function.[12] This qualitative study was undertaken as part of a larger single-site, parallel-group, pilot randomised controlled trial (RCT) conducted in the clinical haematology service at the Peter MacCallum Cancer Centre. The pilot RCT investigated the feasibility, acceptability, and preliminary efficacy of eReCog among people treated for aggressive lymphoma who were self-reporting CRCI.[13] Participants were randomised to either eReCog or usual care, with the program showing feasibility, acceptability, and potential efficacy.[14] Recruitment and retention to the pilot RCT exceeded our expectations, with 38 of 53 eligible individuals (72%) enrolled within 10 months, and 36 of these 38 participants (95%) completing the trial. These unexpectedly high recruitment and retention rates served as the rationale for undertaking this qualitative study. The aim was to explore participants experience and motivation for sustained engagement with a web-based cognitive rehabilitation (eReCog) intervention amongst people with aggressive lymphoma who were self-reporting cognitive decline.

Methods

<u>Intervention</u>

The eReCog program is grounded in cognitive behavioural therapy principles and is designed to provide psychoeducation about CRCI, alongside practical strategies for improving memory, attention, and self-regulation [13,15] The program comprised four weekly online modules focused on: (a) ageing, health, cancer, and cognitive function; (b) memory; (c) attention; and, (d) fatigue, emotions, and cognition. Each module contained 13–20 interactive activities (e.g., goal setting, memory and attention exercises, strategy application, and self-care) which take approximately 30–60 minutes to complete. Participants are expected to complete one module per week across four weeks. Additional features include anonymous peer discussion boards, weekly homework tasks to consolidate learning, and ongoing support from a trained facilitator. [13,14,15]

Data analysis: We used an inductive qualitative approach, conducting semi-structured interviews with fourteen participants. Interviews were recorded, transcribed and a reflexive thematic approach was used to describe and interpret key themes and sub-themes in the data.

Results

Eighteen participants completed eReCog. All but one participant who had died were invited to take part in the sub-study, 14 agreed. Two participants lacked interest, and one had relapsed.

<u>Sample characteristics:</u> The median age was 44 years (range 29-61), and seven participants were female (50%). Median education was 15 years (range 12-18 years) and most participants had Hodgkin lymphoma (71%).

<u>Qualitative Insights</u>

<u>Themes:</u> Four overarching themes were derived from the data: (1) information needs; (2) support; (3) ease of use; and (4) experience of participation (appendix 1)

Theme one: Information needs: Participants described a strong desire to better understand their experiences of CRCI. Many expressed feelings of confusion and frustration when trying to make sense of memory lapses, concentration difficulties, and poor clarity of thought. Several participants described the disruptive impact of CRCI on their daily functioning, such as not being able to recall conversations or respond to questions as quickly as before.

"Brain fog, that's the main one… I couldn't answer questions that people were asking me… I couldn't answer them straight away. I needed to think about it, and I was like, very foggy. It was like I was saying the answer in my brain, but it wasn't actually coming out of my mouth" (p2)

Engaging with eReCog was seen as an opportunity to gain clarity and reassurance. Participants described being motivated to participate in the program with the hope of learning strategies to address these difficulties.

"I thought this (eReCog) could probably help my memory or brain fog. I thought, maybe there's some sort of exercises or there's some sort of technique I could use to improve" (p2)

Several reflected on how eReCog supported improvements in their memory and understanding and felt they were able to apply the specific techniques and strategies they learnt.

"I felt every week my memory was progressing… And I was getting more understanding and getting more knowledge and getting… what I had asked for." (p13)

Learning from others also emerged as a positive influence as the anonymous discussion forum embedded within eReCog allowed participants to compare experiences and gain insight from others navigating similar challenges.

"I liked the activity and being able to see other people's responses that I could go through. When I didn't understand some of the responses I would Google if I wanted to know more information about a particular subject… that led me to another website with like lymphoma survivors and going through their stories." (p9)

Participants also valued the learnings they received that were in addition to activities that directly assessed memory and thinking. Many commented on the support they received for their mental health, particularly the benefits of the meditation exercise.

"The meditation I felt very useful. You know, when I had some free time, I would turn that on and listen to it. I still have it to this day." (p13)

Theme two: Experience of participation: Engagement with eReCog was described as an enjoyable and positive experience, which participants felt was integral to their sustained engagement with the program.

"I think the whole process was like a really good experience. I think it was a great experience." (p3)

This sense of enjoyment underpinned participants' motivation and reinforced their overall positive experience of participation. In addition, reading other participants' anonymous responses on the forum normalised the challenges of CRCI and reduced feelings of experiencing these challenges in isolation. For many participants, this created a sense that their cognitive difficulties were shared rather than personal failings.

"Like being able to read other people's responses and hearing that they were also going through their own side effects… it reassured me that this is normal. Like this is an okay reaction to have." (p14)

Theme three: Support: Participants described the opportunity to receive enhanced support regrading current concerns as central for motivating both their initial participation and sustained engagement with eReCog. The program was often viewed as a form of additional care that complemented their standard of care, by offering support in areas that participants felt were not typically addressed.

"It gave me a lot of different resources… the meditation, for example, and the modules helped provide a very good approach around what was happening." (p9)

Participants also highlighted the role of the online facilitator as particularly valuable in keeping them engaged and motivated. Having someone to check in, guide progress, and provide encouragement gave participants a sense of accountability and was reassuring.

"I think there was someone… who would email me just to check in. It was a reminder, you know, I know you haven't done it yet, but you know, just if you could get it done this week… so that sort of made it easier and exceptionally punctual." (p6)

Alongside this external support, participants also described how eReCog created an opportunity to support themselves. For many, the program instilled a sense of responsibility and discipline at a time when self-motivation was difficult to sustain.

"It gave me a responsibility that I had to do these things… I needed support with doing things for myself and that was good for me." (p11)

In addition, many participants were motivated by the opportunity to support others. Many described a strong sense of altruism, noting their participation was a way to contribute to improving the care of future patients who would face similar challenges.

"I was so grateful that I survived. I wanted to be part of studies so I could help other people in the future" (p11)

Some participants attributed their motivation to give back to the hospital, where they had completed their cancer treatment.

"I think that's more my gratitude for the hospital what made me take part" (p4)

Theme four: Ease of use: The accessibility of eReCog was central to engagement with the program. Participants emphasised the value of being able to access the program online, at a place, time, and pace that suited them. This flexibility was described as critical in supporting participation while managing competing demands during their recovery.

"It wasn't something I had to do in the morning or anything like that. It was just when I was relaxed and had nothing else to focus on, and that was good. Because then I could answer the questions properly as well, so there was no rush or pressure." (p14)

The ability to complete modules at their own pace, and to revisit content when needed, was also valued.

"You can do it in your own time. You didn't have to show up and do something. If you were tight for time, you could do it the next night." (p5)

The timing of delivery of eReCog was also highlighted. Some participants felt the program may have been even more beneficial if delivered earlier after their chemotherapy ended.

"I think soon after treatment would be good… like after your last chemo and when life sort of starts again, when you start adjusting back to life." (p3)

In contrast, others reflected that engaging too early in the treatment process would have been too overwhelming:

"I wouldn't have mentally been able to focus on it." (p1)

Participants also raised concerns about the accessibility of the content, noting that some aspects of the program design and language might be more easily navigated by individuals with higher levels of education.

"The layout or the delivery of it, I think it was a bit clunky… a little bit wordy… sometimes I had to reread things, to try and make them sink in a little bit" (p7)

Some participants further suggested that extending the program beyond four weeks may have been beneficial. "It would be good if it went for a little bit longer and I probably would have still continued to engage in it." (p6)

Despite these reflections, no participant could identify other topics or resources that could have been included to enhance or extend the program when asked.

Conclusions

Our study highlights participants' excellent experience and engagement with a web-based cognitive rehabilitation program among people who have completed chemotherapy for aggressive lymphoma. Participants' accounts revealed that engagement was sustained not only by the program's educational and strategy-based content, but by the experience it offered, the sense of support and altruism fostered, and the ease of use of its online delivery. This study contributes novel insights into how a cognitive rehabilitation program can potentially be delivered to meet the needs of people with haematological cancer, supporting the delivery of equitable digital interventions to improve cognitive outcomes and quality of life.

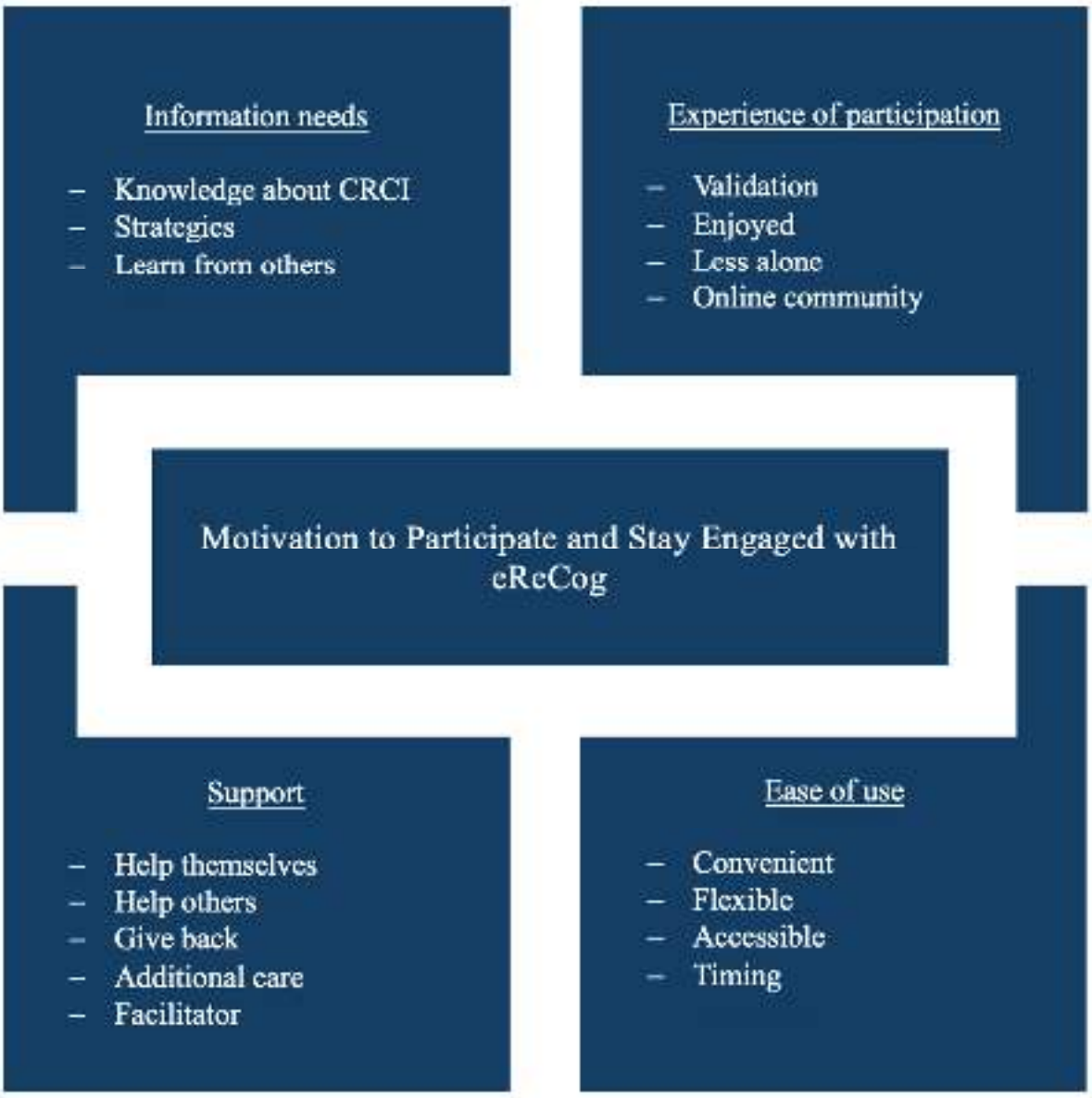
Impacts

- Our pilot study has shown feasibility and acceptability of methods and procedures intended for use in a definitive trial of a web-based cognitive rehabilitation program and has the potential to increase equity of access to cognitive rehabilitation to improve cognitive outcomes for people experiencing CRCI.
- Study findings showed improvements in executive functioning and perceived cognitive abilities for those in the intervention (eReCog) group
- This study was selected for oral presentation at the COSA/IPOS conference in November 2025
- The manuscript has been submitted to Journal of PsychoOncology and is currently under review
- Leadership opportunities: Creator and Leader of Cancer Australia PoCoG Cancer-related cognitive impairment Special interest group.

Future Plans

- Funding will be sought to conduct an appropriately powered large-scale RCT to test the effectiveness of eReCog to improve cognitive outcomes and quality of life.
- Funding has been received via 2026 PeterMac Early Career Development Award (30k) to test a web-based cognitive assessment for people receiving CAR T-cell therapy for lymphoma. Study to commence March 2026
- Submitted abstract to present findings at MASCC conference June 2026

Appendix 1: Overview of themes and subthemes



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