Evaluating the Feasibility of an Exercise Program for Pediatric Brain Tumor Survivors That Uses a Web-Based Platform to Train Community Instructors

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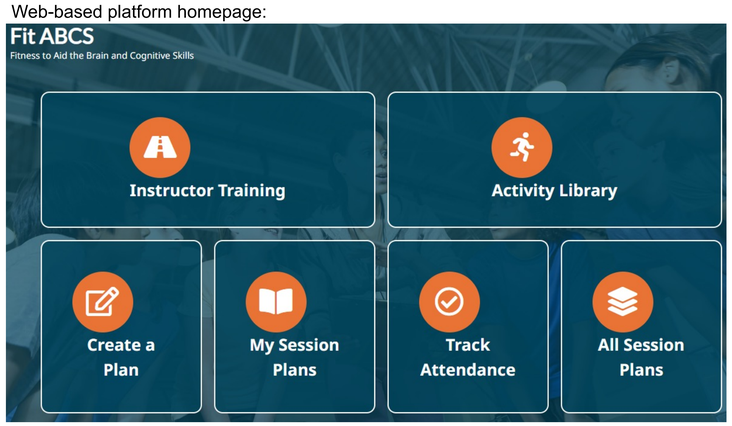
Introduction

- Survival rates among pediatric brain tumor survivors (PBTS) have increased, but managing long-term cognitive effects remains challenging.[1-3]
- Our lab previously conducted a pilot study for a 12-week hospital-led exercise program for PBTS with promising results, however these programs are difficult to sustain and access.[4]
- Our lab developed a web-based platform for the **Fitness to Aid the Brain and Cognitive Skills (FitABCS) study**, to train community fitness trainers (FTs) to deliver the program.

Web-based platform homepage:



RESEARCH QUESTION

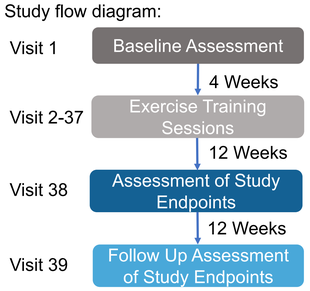
How feasible is a community-led exercise program for PBTS, utilizing a web-based platform to train FTs, in terms of recruitment, adherence, and acceptability?

Methods

Eligibility Criteria:

Inclusion	• 6-17 years old • Brain tumor diagnosis • 1-15 years since diagnosis • Medically stable • English-speaking
Exclusion	• Condition interfering with compliance • Receiving palliative care • Prior cognitive rehabilitation within 3 months of enrollment

Study flow diagram:



Summary of feasibility indicators and their evaluation methods:

Feasibility Indicator	Evaluation methods
Recruitment	Number of patients enrolled vs approached.
Adherence	**Participant attendance rates** Tracked using the platform and verified against reimbursement receipts **Participant completion of all outcome measures** MRI, MEG, cognitive testing, health and quality of life, physical functioning, cardiovascular fitness measures
Acceptability	**Participant acceptability** Therapeutic Alliance Scales for Children-Revised (TASC-R) scores . **Instructor acceptability of platform** Web platform feasibility questionnaire covering Instructor Training Module, Activities Library, Session Planner, Session Report, & Overall Thoughts sections [5-point Likert scale used per question type (table 3)] Calculated mean score for each question → averaged these to determine mean score for each category (acceptability, relevancy, efficiency)

Results

PBTS participants (*n=12*) completed exercise and assessment visits; **Instructors'** (*n=4*) feedback used for platform feasibility.

Participant Recruitment

12.88% Recruitment rate

Primary reason: declined due to disinterest in the study (54 of 132 approached)

Participant Adherence

11/12 participants attended the minimum number of exercise sessions

25% participants completed all assessment measures

- **100%** completed cardiovascular fitness and physical functioning.
- **72.72%** completed cognitive testing.
- Some did not complete MRI (*n=1*), MEG (*n=2*), or health and quality of life (*n=6*) measures.

Participant Acceptability

M=41.5 scored out of 48 on **TASC-R**

Examples of highest scoring items:

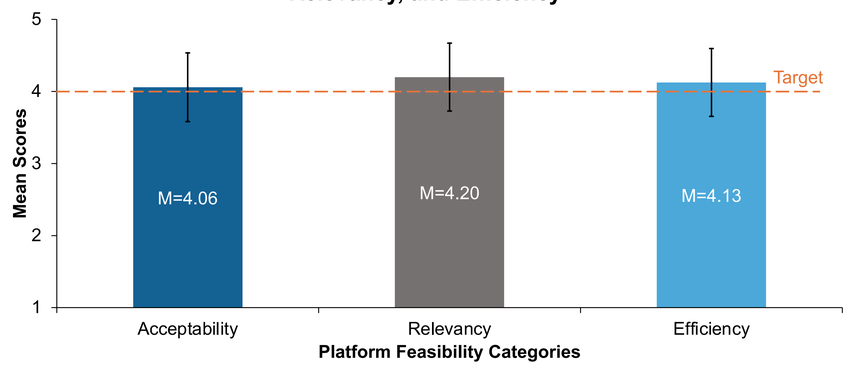
"I like spending time with my instructor"

"I look forward to meeting with my instructor"

"I like my instructor"

Instructor Acceptability

Instructors Feedback Demonstrates Platform Acceptability, Relevancy, and Efficiency



Acceptability

Ease of use: "How easy was it for you to use the session planner?"
Satisfaction: "How would you rate your overall satisfaction with the instructor training module (ITM)?"
Enjoyment: "How much did you enjoy the ITM?
Acceptability: "Was the amount of time it took you to use the activities library acceptable?"

Relevancy

Clarity: "How understandable was the information in the ITM?"
Helpfulness: "How helpful was the ITM for learning how to work with PBTS?"
Completeness: "Rate how well the ITM provided you with information about the Fit ABCS program."

Efficiency

Speed: "How fast was the ITM for you to complete?"
Navigation: "How easy was it to navigate the session planner? (ex. did all buttons work?)"

Conclusion

Findings highlight the promising potential of a web-based platform to train community FTs and identify areas to address in future study designs.

Feasible aspects:

- **Participant adherence**: attendance.
- **Participant acceptability**: positive rapport with instructors.
- **Instructor acceptability of platform**: acceptable, relevant, and efficient.

Infeasible aspects:

- **Recruitment**
- **Participant adherence**: completion of all assessment procedures.

This study was an important step toward promoting better health outcomes for PBTS by enhancing availability of community programs.

Next Steps & Recommendations

Testing feasibility via pilot randomized controlled trial

- Low Recruitment → Multi-site design → increased enrollment → larger sample size.
- Participant acceptability measure → Develop measure to gain feedback regarding participant acceptability of the program.
- Instructor adherence/acceptability → Continue feasibility evaluation by analyzing instructor session report log data.

Session report questions:

- What activities worked well and why?
- What activities didn't work well and why?
- Were there any issues between participants?
- What made it easy to run the session?
- What made it challenging to run the session?

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