

Exploring the user experience of an augmented reality (AR) app prescribing exercise for children and young people with cancer

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INTRODUCTION

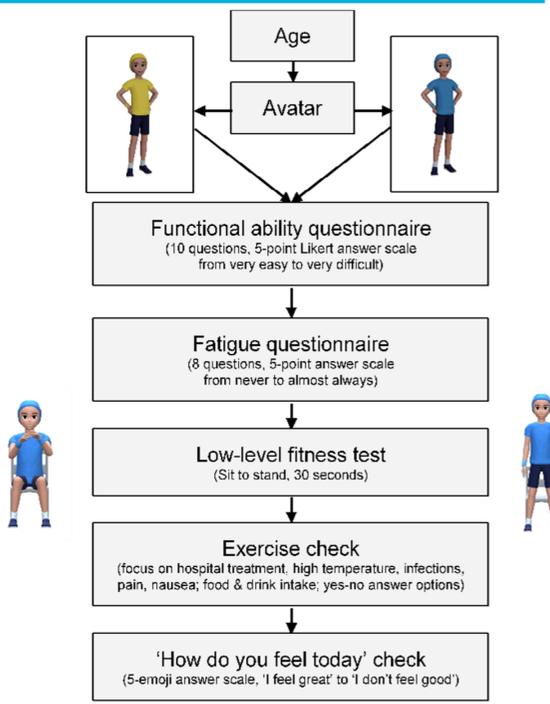
- Regular physical activity (PA) can increase physical function, quality of life, and health related fitness in childhood cancer patients [1]
- Children and young people with cancer face additional barriers when engaging in PA and exercise and PA levels are significantly lower than in healthy age-matched peers [2-3]
- Technology is one way to support remote, individualised exercise interventions for young people [4]
- Novel technologies have the potential to increase health-related PA engagement within paediatric oncology [5]

AIMS

- Provide crucial evidence on user experience of a novel exercise-focused smartphone AR app to inform future technology development within paediatric oncology population

METHODS

- 47 participants (aged 9-18 years)
- 30-minute workshop directly followed by a 30-minute focus group discussion exploring participant experiences, preferences, and suggestions for improvement
- Semi-structured interview guide
- Descriptive analysis with initial deductive, then inductive coding for remaining content



RESULTS

“In my free time, I just keep playing games on my phone so if I had the app, I would just keep doing exercise, and rather than playing games and stuff I would be doing exercise” (Y7)

“The visual representation is really helpful so at least you know you are doing the exercises right” (Y12)

“[...] If you reach your [...] target for one day of exercise you then [...] unlock the points and then you can get something to customise your avatar a bit more [...]” (Y9)

“[...] So you can design your own avatar so that you can change their hairstyle and add different clothes [...], make them wear a hat and change their eye colour [...]” (Y7)

“A form of motivation would be a progress bar, [...] and over time you can see [how] well you improve” (Y12)

PRACTICAL RECOMMENDATIONS

- 1 Provide detailed pre-exercise instructions explaining exercise prescription, e.g. sets and reps
- 2 Implement additional visual guidance to support movement execution
- 3 Provide different levels of intensity to account for previous experience and current capabilities, with an option for users to select their own
- 4 Provide progress overview graphs/bars/charts as a motivational tool
- 5 Consider adding leaderboards and allowing different users to connect with other app users
- 6 Consider implementing educational games and the ability to earn virtual ‘points’ for completing workouts
- 7 Strongly consider implementing the possibility for user customisation of the avatar and app interface (e.g. backgrounds)

AR has the potential to increase PA engagement for children and young people, however further research and development are needed. Seven practical recommendations have been suggested for future development of PA AR apps.

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