

Efficacy of a video game purpose-designed to increase knowledge about treatment and self care in adolescents and young adults with cancer

Ivan L. Beale, PhD

University of New South Wales

Pamela M. Kato, EdM, PhD

HopeLab & Stanford University Department of Pediatrics

Verónica M. Marín-Bowling & Nicole Guthrie, MS

HopeLab

Steve W. Cole, PhD

UCLA School of Medicine

Brad H. Pollock, MPH PhD

University of Texas Health Science Center

This presentation

- Illustrates the use of new technology to address a health issue in adolescents and young adults

This presentation

- Describes how a video game was designed and used to help adolescents and young adults with cancer understand what was happening during treatment

Outline of this presentation

- Problems providing effective psycho-education for young people with cancer
- Why a video game might help
- Designing and producing the video game *Re-Mission*
- Does *Re-Mission* work? – The efficacy study

Problems providing effective psycho-education for young people with cancer

Poor adherence to treatment regimes related to:

- Social communication issues
- Perception of invulnerability
- Rejection of authority

Why a video game might help

- Broadly appealing technology
- Can target specific content
- Highly interactive and adaptive
- Easy to distribute and access

Designing and producing the video game *Re-Mission*

About HopeLab

- Non-profit founded in 2001
- Based in Palo Alto, California
- Expertise in research, medical science, psychology, & video game technology

Designing and producing the video game *Re-Mission*

HopeLab Mission

To combine rigorous research with innovative solutions to improve the health and quality of life of young people with chronic illness.

Designing and producing the video game *Re-Mission*

- Review available research
- Consult a range of experts
- Consult young people with chronic illness
- Identify critical needs to be addressed
- Design and produce a research-based video game
- Evaluate the efficacy of the game using sound research methods

A brief introduction to



An outline of Re-Mission

- 3-D videogame played in the bodies of 'virtual' cancer patients
- 3rd person action game format
- Player controls a robot 'Roxxi' on 20 different 'missions' relating to common treatment issues

What are the game objectives?

On the game missions, the robot 'Roxxi' has to get the patient to do self care, such as:

- Taking oral chemotherapy tablets.
- Taking antibiotic tablets.
- Practising relaxation for pain or anxiety.
- Eating and drinking to maintain health.

What can the player learn?

On the game missions, Roxxi (and the player) experience the positive effects in the body of good self care, and the negative effects of poor self care.

What does a mission look like?



What else is in Re-Mission?

There is a video clip at the beginning and end of each mission which explains what is happening in the patient's treatment, and why self care is important.

An example of a video clip

In one mission, the patient is at risk for infection but has not been taking the prescribed antibiotic, and a bacterial infection has started.

The patient must be reminded to take the antibiotic so that the infection can be controlled.

The video clip at mission start



(video clip here)

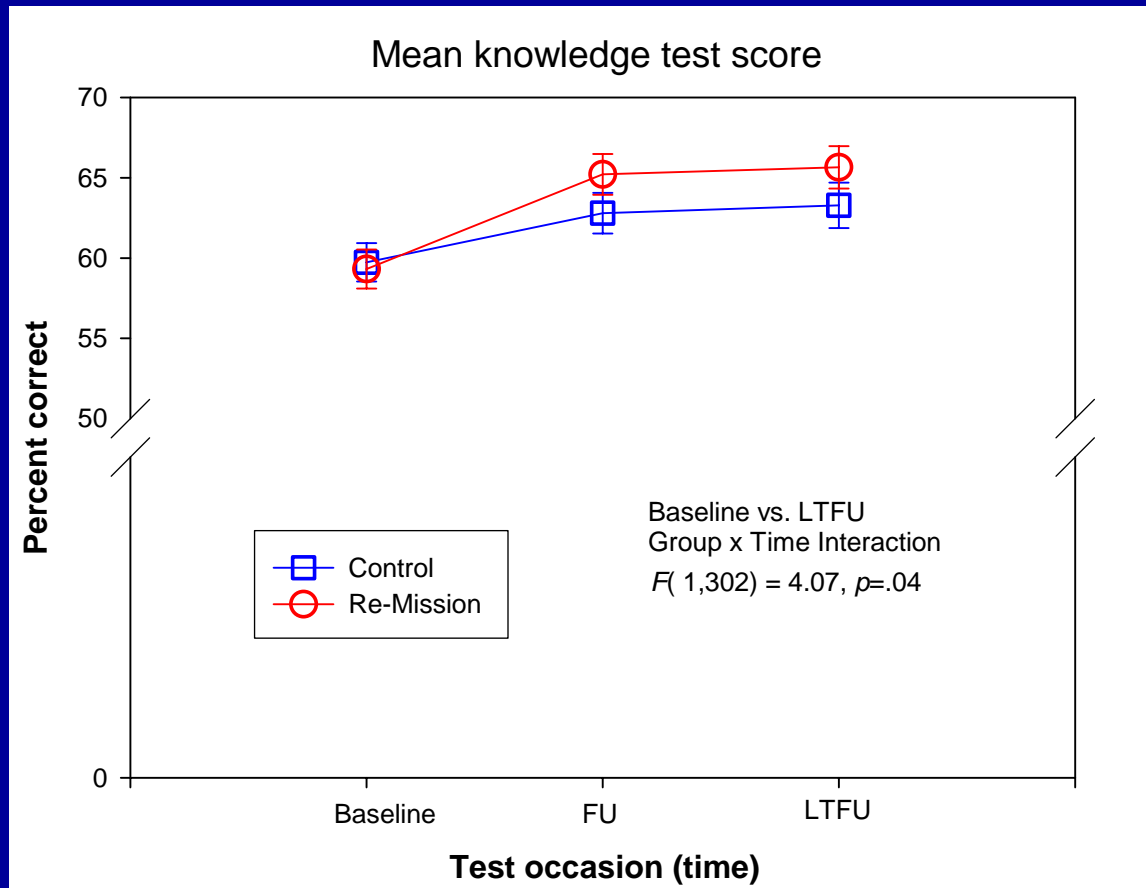
The efficacy study

- 375 young people being treated for cancer at 34 sites in US, Canada and Australia
- Randomly allocated to Re-Mission or Control conditions
- Measures taken at baseline, 1-month and 3-months
- Multiple measures related to cancer knowledge, quality of life, control, medication adherence and other self care behaviour

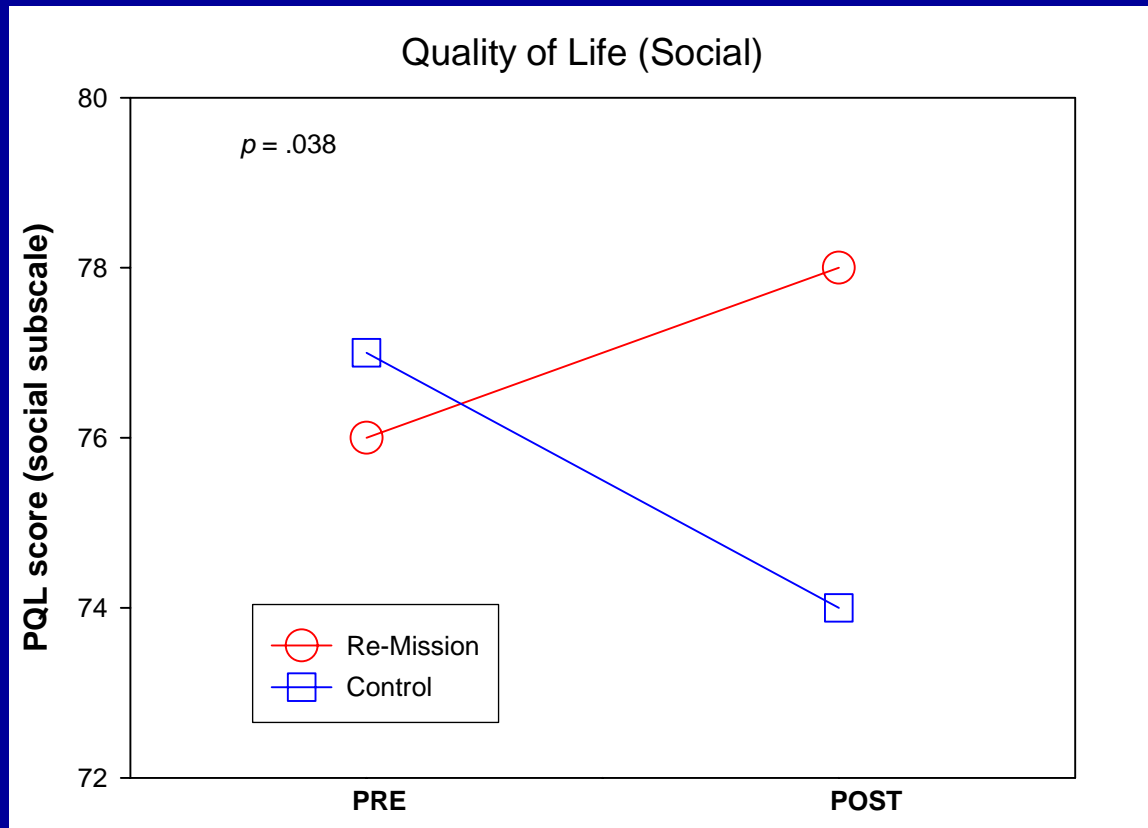
Results

- Statistical analyses were conducted to detect real differences between Re-Mission and Control group pre-post treatment scores on various measures
- Measures showing real differences included:
 - Cancer knowledge
 - Quality of life
 - Perceived control of illness
 - Adherence to medications
 - Perceived difficulty to practice self-care

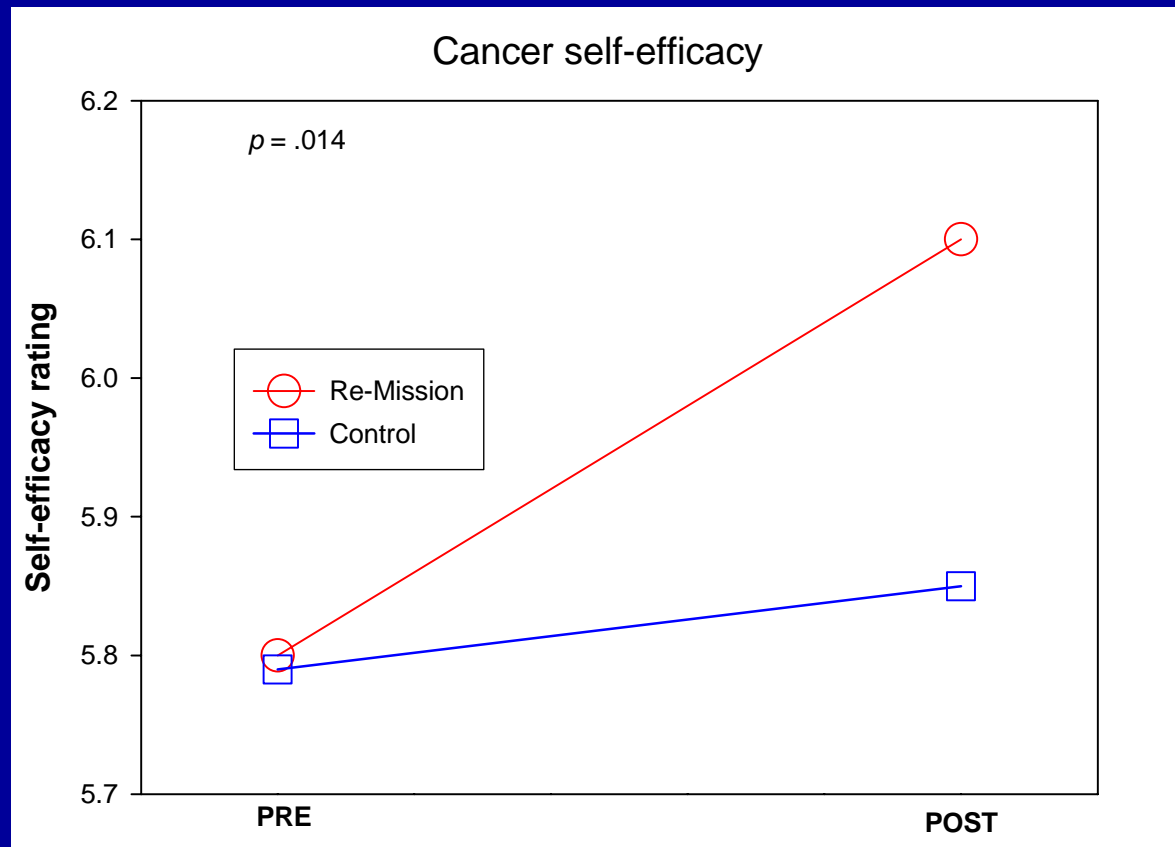
Results - knowledge



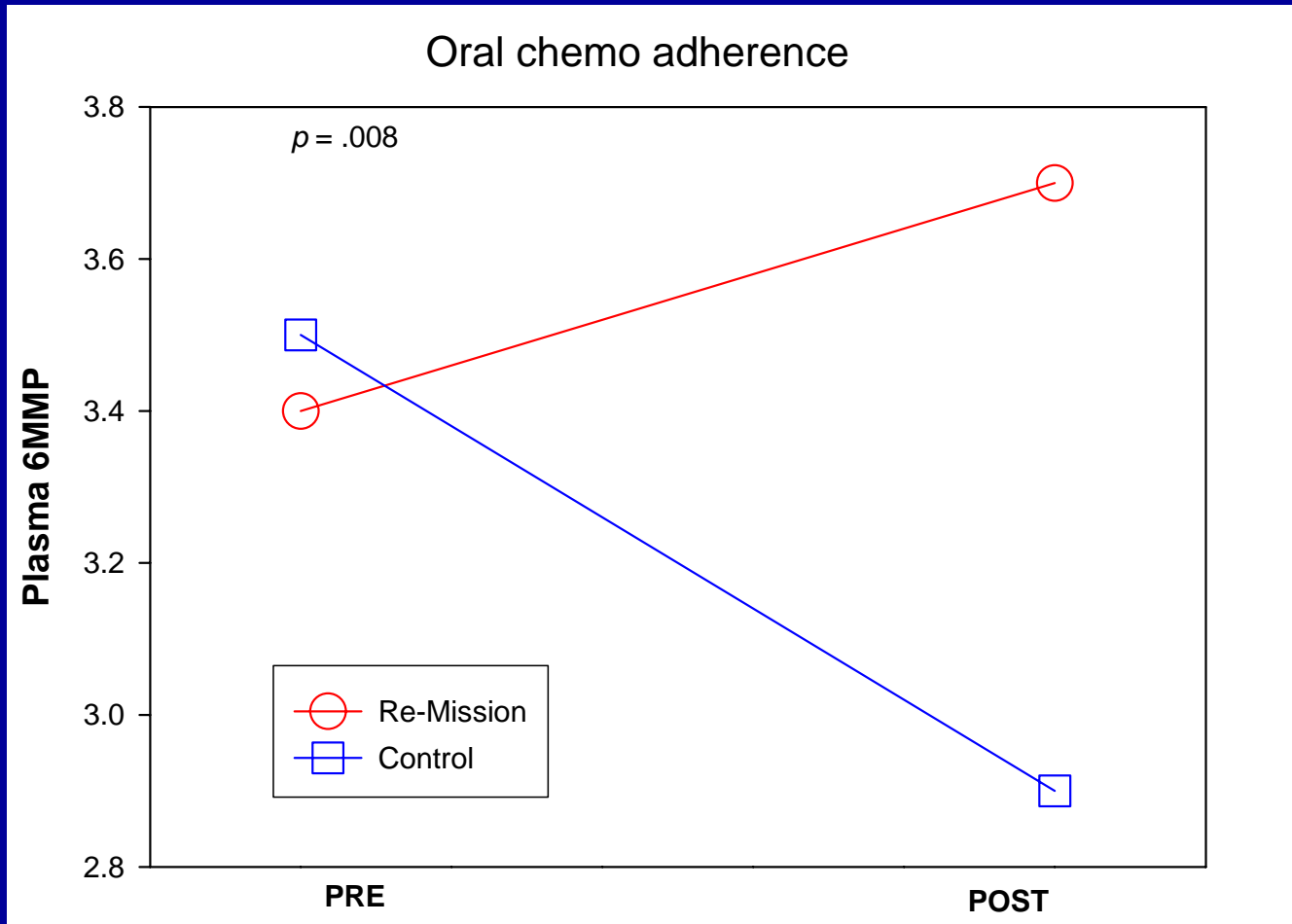
Results – Quality of Life



Results – Cancer self-efficacy



Results – Medication adherence



Conclusions

- Cancer patients allocated to play Re-Mission, compared with controls, showed larger positive changes on relevant measures over a 3-month period
- Re-Mission appears to be efficacious as a psychoeducational intervention for young cancer patients
- Research-based video games could be used effectively for young people with other chronic illnesses

Acknowledgement

- Funding for this research and presentation:



- Access to Re-Mission:
 - www.hopelab.org
 - www.re-mission.com