The Effectiveness of an Adventure-Based Training in Reducing Fatigue and Enhancing Quality of Life among Childhood Cancer Survivors

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Outlines of Presentation

- The background of childhood cancer and survivors in Hong Kong
- The impacts of cancer and its treatment on the physical and psychological well-being of childhood cancer survivors
- Present a Phase III RCT on the effectiveness of adventure-based training
New technological & breakthroughs in cancer treatment
Treatment efficacy has improved... but survivors pay a high price in side effects.

- Persistent fatigue
- Reduced muscle strength and endurance
- Decreases in functional mobility and physical fitness
- Poor concentration and decreased attention
- Memory loss
- Activity intolerance and
- Depression, and lower self-esteem

Severely affect the physical & psychological well-being.

5-Year Survival Rates in 1997 & 2007:
- 1997: 50%
- 2013: 80%
Amongst all, Cancer-related fatigue is the most common....

Cancer patients 70%

Cancer survivors 30%
Impact of Cancer-related Fatigue
Fatigue ...

a debilitating adverse effects...
Physical & Psychological Well-being
Physical Activity Level

Childhood Cancer

Treatment
Induces muscle catabolism and causes muscle atrophy
The Impact of Cancer and Its Treatment on Physical Activity Levels and Behavior in Hong Kong Chinese Childhood Cancer Survivors

Physical Activity Self-Efficacy

Cancer survivors < Healthy children
Implications for Nursing Practice

Misconceptions × Awareness
Adventure-based training
Aims: Changing cognitive thinking & behaviour through *Experience* and *Practice* in an outdoor environment

Use of games, problem solving exercises, & trust activities as part of an intentional change process
Results

Physical activity self-efficacy

Physical activity level
Limitations of the Phase II RCT

- Small sample size (N = 71)
- Data collection conducted mainly in one setting
- Did not measure physiological changes
Aim

To examine the effectiveness of an adventure-based training in reducing fatigue and quality of life among Hong Kong Chinese childhood cancer survivors.
Research design

A Phase III RCT, two-group pre-test and repeated post-test between-subject design was used

- Randomization
- Statistical Power
- Outcome Measures
Sample

Inclusion criteria

- Aged 9 to 16
- Able to speak Cantonese and read Chinese
- Completed cancer treatment for at least six months
- Did not engaged in regular physical exercise in the previous six months

Exclusion criteria

- Physical disabilities, impaired mental status, cognitive impairment, communication barriers or had evidence of recurrence or second malignancy
Types of Intervention

Experimental Group

Education Sessions + Adventure-Based Training

Placebo Control Group

Leisure activity sessions + Visit the theme park
Measures

- The Chinese version of the Fatigue Scale (FS-C)
- The Chinese University of Hong Kong: Physical Activity Rating for Children and Youth (CUHK-PARCY)
- The Physical Activity Self-Efficacy (PA-SE)
- The Physical Activity Stages of Change Questionnaire (PASCQ)
- A hand-held dynamometer (HHD) to assess the hand-grip strength
- The Chinese version of the Pediatric Quality of Life Inventory 4.0 Generic Core Scale
Baseline measure: before the intervention

Data Collection

Intervention

2 weeks
2 months
4 months
6 months
3 months
6 months
9 months
12 months
RESULTS

Approached (n = 638)
- Outpatient clinic (n = 108)
- Children’s Cancer Foundation (n = 320)
- Sunshine group (n = 210)

Did not turn up (n = 377)
- Children’s Cancer Foundation (n = 229)
- Sunshine group (n = 148)

Assessed for eligibility (n = 261)

- Did not meet inclusion criteria (n = 24)
- Refused to participate (n = 15)
- Response rate 93.7%
  Reasons
  - children unavailable for interventions
  - showed no interest to participate

Randomized (n = 222)
- from Outpatient clinic (n = 103)
- from Children’s Cancer Foundation (n = 62)
- from Sunshine Group (n = 57)

Experimental Group
- T1 (n = 117)
  Retention = 97.4%
- T2 (n = 114)
  Retention = 93.2%
- T3 (n = 109)
  Retention = 93.2%
- T4 (n = 105)
  Retention = 89.7%
- T5 (n = 102)
  Retention = 88.0%

Reason for not turning up
- No longer interested to participate (n = 14)

Control Group
- T1 (n = 105)
- T2 (n = 100)
  Retention = 95.2%
- T3 (n = 96)
  Retention = 91.4%
- T4 (n = 92)
  Retention = 87.6%
- T5 (n = 89)
  Retention = 84.8%

Reasons for not turning up
- Unsatisfied with the grouping (n = 7)
- No longer interested to participate (n = 9)

Analysed (n = 117)

Analysed (n = 105)
The experimental group reported:

- lower levels of cancer-related fatigue,
- higher levels of self-efficacy and physical activity,
- greater right- and left-hand grip strength, and
- better QoL than the control group.

Effect Size: Low to moderate
Discussion

Importance

- Determines the effectiveness of adventure-based training in promoting physical activity, reducing fatigue, and enhancing self-efficacy and QoL
- The largest RCT examining the effectiveness of adventure-based training. The scientific rigor of the study was strengthened by addressing the limitations of previous studies.
Discussion

Specifically, this study adds further evidence that:

- Adventure-based training is effective in promoting the adoption and maintenance of regular physical activity among childhood cancer survivors through enhancing their self-efficacy.

- Regular physical activity can help alleviate cancer-related fatigue, increase muscle strength and endurance, and enhance QoL.
Discussion

Specifically,

This study adds further Evidence that...

- Adventure-based training can significantly change childhood cancer survivors’ physical activity behaviour
- Adventure-based training is feasible to implement and acceptable to childhood cancer survivors
Implications for future practice

- Inform future policy making on promoting physical and psychological well-being for childhood cancer survivors
- Adventure-based training can be used to promote the adoption and maintenance of regular physical activity
- Adopt a multi-disciplinary approach to sustain the adventure-based training
Thank you & Bye-bye!
Are you ready?
Lift me up, 1.. 2.. 3...!
Hold me up, hold me tight!
Never give up!
Yes, I can!
We are happy!
Theoretical Framework

- Experiential Learning Theory
- Social Cognitive Theory
- Transtheoretical Model of Behavior Change
**Concrete Experience**
Participants: having some physical activities
Trainer: observe and note down the important moments

**Reflective Observation**
Participants: after activities
Trainer: could recap the experiences that participants had had in the activity

**Abstract Conceptualization**
Participants: recapping the experience
Trainer: assist them to sum up their experience and help them to discuss

**Active Experimentation**
Consolidation
Trainer will encourage participants to think of similar situations that they might face in their daily lives

**Adventure-Based Training**
Social Cognitive Theory

You Can Do It!

Self-Efficacy
Theoretical Framework

Concrete Experience
Reflective Observation
Abstract Conceptualization
Active Experimentation
Adventure-Based Training

Pre-contemplation
Contemplation
Preparation
Action
Maintenance
Pre-contemplation
Contemplation
Preparation
Action

Physical Strength
& Quality of Life

Increasing Self-Efficacy
Reducing Fatigue