Relationships Among Fatigue, Physical Activity, Depressive Symptoms, and Quality of Life in Chinese Young Cancer Survivors

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Outlines of Presentation

- The background of childhood cancer in Hong Kong

- Examine the relationships among fatigue, physical activity, depressive symptoms, and quality of life in childhood cancer survivors
In Hong Kong, childhood cancer is the 2nd major cause of death among children. Incidence: 10 cases per 100,000 children, represents ~ 0.8 of all new cancer cases (Hong Kong Cancer Registry).
Most Common Types of Childhood Cancer in Hong Kong

5 Most common cancers in Children and adolescents (0-19 years)
(2009-2013)

- Leukaemias 白血病 (28.9%)
- Germ-cell and gonadal 胚胎細胞瘤 (12.2%)
- Brain and spinal 腦癌 (12.7%)
- Carcinoma and epithelial 其他上皮癌 (10.2%)
- Lymphomas 淋巴癌 (11.0%)
- All other types (其他種類) (25.0%)

~ 200 (0 to 19 years) diagnosed cancer between 2009 – 2013
### New Cases of Cancer among Children & Adolescents (0-19 years) in Hong Kong

**Hong Kong Cancer Registry (2015)**

<table>
<thead>
<tr>
<th>Diagnostic Group</th>
<th>Both genders</th>
<th>Year / No.</th>
<th>Average per year</th>
<th>Rel. freq. %</th>
<th>Crude Rate*</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2009</td>
<td>2010</td>
<td>2011</td>
<td>2012</td>
</tr>
<tr>
<td>Leukaemia</td>
<td></td>
<td>48</td>
<td>65</td>
<td>60</td>
<td>53</td>
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<tr>
<td>Lymphomas</td>
<td></td>
<td>25</td>
<td>19</td>
<td>18</td>
<td>22</td>
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<tr>
<td>Brain and spinal</td>
<td></td>
<td>34</td>
<td>22</td>
<td>28</td>
<td>23</td>
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<tr>
<td>Sympathetic nervous system tumours</td>
<td></td>
<td>6</td>
<td>12</td>
<td>7</td>
<td>12</td>
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<tr>
<td>Retinoblastoma</td>
<td></td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>7</td>
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<tr>
<td>Renal tumours</td>
<td></td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Hepatic tumours</td>
<td></td>
<td>4</td>
<td>4</td>
<td>9</td>
<td>3</td>
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<tr>
<td>Malignant bone tumours</td>
<td></td>
<td>9</td>
<td>11</td>
<td>7</td>
<td>15</td>
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<tr>
<td>Soft tissue sarcomas</td>
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<td>12</td>
<td>14</td>
<td>13</td>
<td>12</td>
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<tr>
<td>Germ-cell and gonadal tumours</td>
<td></td>
<td>22</td>
<td>26</td>
<td>18</td>
<td>26</td>
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<tr>
<td>Carcinoma and epithelial tumours</td>
<td></td>
<td>20</td>
<td>16</td>
<td>23</td>
<td>18</td>
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<tr>
<td>Other &amp; unspecified</td>
<td></td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>0</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td>189</td>
<td>198</td>
<td>192</td>
<td>195</td>
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</table>
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 quality of life

5-Year Survival Rates in 1997 & 2007

0 20 40 60 80 100%

1997 2007 50% 80%
Amongst all, Cancer-related fatigue is the most common....

Cancer patients 70%

Cancer survivors 30%
Definition of Cancer-related Fatigue

A person’s subjective feeling of persistent tiredness and exhaustion that cannot be relieved by rest.
Etiology of Cancer-related Fatigue

Direct effects of cancer and tumour burden

Comorbid medical conditions
- Anemia
- Malnutrition
- Thyroid dysfunction
- Infection

Treatment side effects
- Chemotherapy
- Radiotherapy
- Surgery
- Medication side effects

Exacerbating comorbid symptoms
- Chronic pain
- Sleep disturbances
- Deconditioning

Psychosocial factors
- Coping with chronic illness
- Anxiety
- Depression
Impact of Cancer-related Fatigue
Fatigue ...

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

Childhood Cancer

Treatment
The Impact of Cancer and Its Treatment on Physical Activity Levels and Behavior in Hong Kong Chinese Childhood Cancer Survivors

Childhood cancer survivors

52.1% in United States

92.2% in Hong Kong

did not perform regular physical exercise
Study

Depressive Symptoms

Fatigue

Physical Activity

HRQOL

Aims
Methods

- cross-sectional study
- 400 childhood cancer survivors
- ages 7 to 18 years old
- a pediatric oncology outpatient clinic
**Instruments**

- Chinese version of the Fatigue Scale
- Physical Activity Rating for Children and Youth
- Centre for Epidemiologic Studies Depression Scale for Children
- Pediatric Quality of Life Inventory 4.0 Generic Core Scales
Results

An average of 47% participants reported that the occurrence and severity of their fatigue was between “half the time” and “all the time” over the previous seven days.
### Multiple Regression Analysis for Variables Contributing to Cancer-related Fatigue (N = 400)

<table>
<thead>
<tr>
<th>Variables contributing to fatigue</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>p-value</th>
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<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Age</td>
<td>0.05</td>
<td>0.35</td>
<td>0.01</td>
<td>.88</td>
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<tr>
<td>Sex</td>
<td>0.46</td>
<td>2.57</td>
<td>0.02</td>
<td>.86</td>
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<tr>
<td>Diagnosis</td>
<td>0.28</td>
<td>0.31</td>
<td>0.08</td>
<td>.38</td>
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<tr>
<td><strong>Step 2</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Age</td>
<td>-0.37</td>
<td>0.27</td>
<td>-0.09</td>
<td>.18</td>
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<tr>
<td>Sex</td>
<td>-0.93</td>
<td>1.95</td>
<td>-0.03</td>
<td>.64</td>
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<tr>
<td>Diagnosis</td>
<td>-0.04</td>
<td>0.24</td>
<td>-0.01</td>
<td>.87</td>
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<tr>
<td>Treatment received</td>
<td>-0.87</td>
<td>0.53</td>
<td>-0.11</td>
<td>.10</td>
</tr>
<tr>
<td>Times since treatment completed</td>
<td>-2.46</td>
<td>1.19</td>
<td>-0.14</td>
<td>.04</td>
</tr>
<tr>
<td>Number of depressive symptoms</td>
<td>0.47</td>
<td>0.09</td>
<td>0.21</td>
<td>.01</td>
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<tr>
<td>Physical activity levels</td>
<td>-1.90</td>
<td>0.21</td>
<td>-0.56</td>
<td>.00</td>
</tr>
</tbody>
</table>

- $R^2 = 0.53$
- Adjusted $R^2 = 0.51$
- $R^2$ change = 0.49
Conclusion
Implications for Nursing Practice

Physical activity may be a useful indicator for screening those childhood cancer survivors who are likely to exhibit cancer-related fatigue.
Implications for Nursing Practice

Misconceptions  

Awareness
Implications for Nursing Practice

Childhood Cancer

Treatment

Physical Activity Level
Adventure-Based Training and Health Education Program to Enhance Quality of Life Among Chinese Childhood Cancer Survivors

A Randomized Controlled Trial

Cancer kids join recovery challenge

University head of pediatrics and adolescent medicine Geoffrey Chan Chi-Fung said: "With the recent advances in medical technology, the overall survival rate of childhood cancer is already more than 70 percent." In 1986, when he was diagnosed with leukemia, eight years ago, people had a constant feeling of fatigue after recovering from cancer.

"I didn't want to exercise because I always felt tired," he said yesterday. Meanwhile, Yang Yat-fong, 9, who suffered from muscle cancer at the age of one, now cites rock-climbing as her favorite activity during the adventure-based training camps.

Researcher and school associate professor William Li He-chung said adventure-based learning allows participants to challenge themselves by experiencing, learning, and doing seemingly impossible tasks.
Thank you!
Thank you & Bye-bye!