The “Can You Swim?” Project: An international feasibility study of real and perceived swimming competency in the context of drowning prevention

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Research Questions

In the context of drowning prevention:

1. Does Swim = Safe?
2. Do only weak/non-swimmers drown?
3. Do only good swimmers drown?
4. How good is good enough?
5. How do we measure swimming ability?
6. How well do people estimate their ability?
7. How well do people estimate their risk of drowning?
Brief History

Can You Swim? Project

2006 - Handbook on Drowning: Swimming ability and drowning risk (RB/KM/RS/JG/JMcV)
2007 - World Water Safety Conference, Oporto
2008 - Phase 1: New Zealand, February 2008
  Phase 2: Norway, September 2008
2009 - Phase 3: Australia, March 2009
  Phase 4: Japan, July 2009

Research Team

Can You Swim? Project

PEOPLE:
K. Moran (New Zealand)
R.S. Stallman, P.L. Kjendlie, D. Dahl (Norway)
J. Blitvich, L. Petrass, K. McIlroy (Australia)
T. Goya, A. Matsui, T. Nomura (Japan)
Research Team

Can You Swim? Project

PLACES:
University of Auckland (New Zealand)
Norwegian School of Sports Science (Norway)
University of Ballarat (Australia)
Aichi University of Education, Naruto University of Education, Kyoto Institute of Education (Japan)

Purposes of the study

- To construct a model of swimming assessment relevant to drowning prevention
- To use the model to assess the aquatic skills of a group of young adults
- To compare these assessed skills with pre-conceived estimates of these skills
- To determine self-estimated perceptions of the risk of drowning
Method

Two phases of data gathering:

Phase 1: Pre-practical

Self-complete questionnaire: 20 questions, 10-15 minutes

Swimming and swimming-related competencies

e.g. How would you describe your ability to swim compared to others like you?

Perceptions of drowning risk (5 scenarios)

e.g. How would you rate the risk to your life in the following situation:
    tipped upside down in a canoe 100m from the shore of a lake?
    Fell into deep water fully clothed while walking along a river bank
Method

Phase 2: Practical

- **Distance swum non-stop:**
  7 distance categories, <50m -> 300m
- **Stationary floating in deep-water**
  7 time categories <2 mins -> 15 mins
- **Swim 100m non-stop on back**
  3 categories ranging from did not complete - completed easily
- **Dive headfirst entry into deep water**
- **Surface dive to deep end of the pool**
- **Swim underwater a maximum of 25 metres**
- **Contact rescue tow 25 metres**

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Results

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>199</td>
<td>53.4</td>
</tr>
<tr>
<td>Female</td>
<td>174</td>
<td>46.6</td>
</tr>
<tr>
<td>17-19 years</td>
<td>188</td>
<td>50.4</td>
</tr>
<tr>
<td>20-24 years</td>
<td>170</td>
<td>45.6</td>
</tr>
<tr>
<td>25-29 years</td>
<td>15</td>
<td>4.0</td>
</tr>
<tr>
<td>New Zealand</td>
<td>68</td>
<td>18.2</td>
</tr>
<tr>
<td>Norway</td>
<td>81</td>
<td>21.7</td>
</tr>
<tr>
<td>Japan</td>
<td>113</td>
<td>30.3</td>
</tr>
<tr>
<td>Australia</td>
<td>112</td>
<td>29.8</td>
</tr>
<tr>
<td>Total</td>
<td>373</td>
<td>100.0</td>
</tr>
</tbody>
</table>
RESULTS

‘Perceived’ aquatic competency

“How many lengths of a 25-metre pool can you swim without stopping or touching the bottom?”

<table>
<thead>
<tr>
<th></th>
<th>Total %</th>
<th>Male %</th>
<th>Female %</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;50 m</td>
<td>16.4</td>
<td>14.6</td>
<td>18.5</td>
</tr>
<tr>
<td>51-100 m</td>
<td>10.2</td>
<td>12.6</td>
<td>7.5</td>
</tr>
<tr>
<td>101-200 m</td>
<td>11.0</td>
<td>8.5</td>
<td>13.8</td>
</tr>
<tr>
<td>201-300 m</td>
<td>9.1</td>
<td>10.1</td>
<td>8.1</td>
</tr>
<tr>
<td>&gt;300m</td>
<td>53.2</td>
<td>54.3</td>
<td>52.0</td>
</tr>
</tbody>
</table>

World Drowning Prevention Conference, Da Nang, 2011

RESULTS

‘Perceived’ aquatic competency

- 40% considered they were good/excellent swimmers (n = 150)
- 27% of the students estimated that they could swim less than 100 m (n = 99)
- 53% estimated >300m (n = 198)
- No significant gender differences in perceived swimming competence
### RESULTS

#### ‘Real’ aquatic competency

<table>
<thead>
<tr>
<th>Continuous swimming</th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n$</td>
<td>%</td>
</tr>
<tr>
<td>&lt; 50 m</td>
<td>21</td>
<td>5.7%</td>
</tr>
<tr>
<td>50-100 m</td>
<td>27</td>
<td>7.3%</td>
</tr>
<tr>
<td>101-200 m</td>
<td>19</td>
<td>5.1%</td>
</tr>
<tr>
<td>201-300 m</td>
<td>20</td>
<td>5.4%</td>
</tr>
<tr>
<td>301-399 m</td>
<td>21</td>
<td>5.7%</td>
</tr>
<tr>
<td>400m+</td>
<td>261</td>
<td>70.7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Floating Ability</th>
<th>$n$</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 2 minutes</td>
<td>127</td>
<td><strong>35.2</strong></td>
</tr>
<tr>
<td>&lt; 6 minutes</td>
<td>47</td>
<td>13.0</td>
</tr>
<tr>
<td>&lt; 15 minutes</td>
<td>43</td>
<td>11.9</td>
</tr>
<tr>
<td>&gt; 15 minutes</td>
<td>144</td>
<td><strong>39.9</strong></td>
</tr>
</tbody>
</table>
RESULTS

‘Real’ aquatic competency

<table>
<thead>
<tr>
<th>100m on Back</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not complete</td>
<td>47</td>
<td>13.2</td>
</tr>
<tr>
<td>Completed with poor form</td>
<td>72</td>
<td>20.2</td>
</tr>
<tr>
<td>Completed with satisfactory form</td>
<td>101</td>
<td>28.4</td>
</tr>
<tr>
<td>Completed with good/excellent form</td>
<td>136</td>
<td>38.2</td>
</tr>
</tbody>
</table>

‘Real’ aquatic competency:

- 71% could swim > 300m non-stop
- 13% could swim <100m
- No significant gender differences in perceived swimming competency
- 35% could not stationary float for 2 min
- 33% could not swim/performed poorly 100m on back
RESULTS

‘Real’ aquatic competency:

- 65% could safely headfirst dive into deep water
- 77% could surface dive to two metres depth
- 37% could swim 25m underwater

RESULTS

Perceived risk of drowning:

Significant gender differences in perceptions of risk of drowning e.g.

- More females rated *falling into a deep river fully clothed* as an extreme/high risk situation (females 43%, males 29%)
- More females rated *caught in a rip current at a surf beach* as an extreme/high risk situation (females 64%, males 52%)
RESULTS

Real and perceived swimming ability:

Spearman RHO correlations (* = sig. at 0.01 level)
- **Swim test v. swim estimate:**
  \[ r_s = 0.369^* \text{ (male = .408*, female = .318*)} \]
- **Float test v. float estimate:**
  \[ r_s = 0.532^* \text{ (male = .601*, female = .561*)} \]
- **Backstroke test v. estimate:**
  \[ r_s = 0.191^* \text{ (male = .229*, female = .132)} \]
- No other significant correlations

Conclusions

- Student self-estimates of competency compared well with actual measurement
- No significant gender differences in both self-estimated and actual swimming-related competencies
- Males significantly estimated lower risks of drowning across a range of drowning scenarios
- Some differences between countries
Further study

- Present current findings
- Review/refine assessment model
- Extend study to other countries
- Extend study to other populations
Thank you
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