Can patient related variables predict the time occupational therapists spend with their patients prior to discharge from hospital?

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Increased health expenditure

- Ageing population
- Increased chronic disease/disability
- More hospital admissions

Pressure on healthcare services

- Review of health service processes
- Workforce planning models
- Meet demands in existing budgets

Workforce planning models

• Research in nursing and medical literature

• Evidence supports improvements in:
  o Workforce planning
  o Efficiency
  o Patient care

• Could understanding predictive variables of time use be useful in occupational therapy?
Aim

• Can patient related variables predict the amount of time occupational therapists spend with patients in hospital?

• Does this differ based upon functional ability or hospital site?
Method

This study investigated the relationship between:

- Occupational therapist clinical time use
- Patient age
- Marital status
- Primary language
- Diagnosis
- Functional ability
  - SMAF score
Preliminary Analysis

• Descriptive statistics
• Analysis of variance
• Correlation
• Multiple regression
• Independent samples t-tests

Preliminary Results

• Data from 5319 inpatients were included
• All variables differed significantly between sites
Preliminary Results

Correlations between Occupational Therapist Clinical Time Use (minutes) and Patient Related Variables at \( p < 0.01 \) level

<table>
<thead>
<tr>
<th>Location</th>
<th>Occupational Therapist</th>
<th>Age</th>
<th>Marital status</th>
<th>Primary language</th>
<th>SMAF score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfred</td>
<td>Total time use</td>
<td>0.082*</td>
<td>-0.013</td>
<td>0.037</td>
<td>-0.248*</td>
</tr>
<tr>
<td>Caulfield</td>
<td>Total time use</td>
<td>-0.186*</td>
<td>0.071</td>
<td>-0.057</td>
<td>-0.267*</td>
</tr>
<tr>
<td>Sandringham</td>
<td>Total time use</td>
<td>0.170*</td>
<td>0.050</td>
<td>0.058</td>
<td>-0.184*</td>
</tr>
</tbody>
</table>

Age and SMAF predicted the following variance in occupational therapist clinical time use:

- Alfred Hospital (acute): 6.5\% \( (r^2 = 0.065; p < 0.01) \)
- Caulfield Hospital (subacute): 10.9\% \( (r^2 = 0.109; p < 0.01) \)
- Sandringham Hospital (acute): 5.9\% \( (r^2 = 0.059; p < 0.01) \)

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## Preliminary Results

**Mean Occupational Therapist Clinical Time Use per Day (minutes) for Patients Experiencing Mild and Moderate to Severe Loss of Autonomy**

<table>
<thead>
<tr>
<th>Location</th>
<th>SMAF score</th>
<th>Sample size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alfred (acute)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMAF score ≥ -15</td>
<td>1667</td>
<td>34.88</td>
<td>28.92</td>
<td></td>
</tr>
<tr>
<td>SMAF score ≤ -15</td>
<td>1196</td>
<td>30.12</td>
<td>25.45</td>
<td></td>
</tr>
<tr>
<td><strong>Caulfield (sub acute)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMAF score ≥ -15</td>
<td>441</td>
<td>47.01</td>
<td>35.46</td>
<td></td>
</tr>
<tr>
<td>SMAF score ≤ -15</td>
<td>791</td>
<td>46.09</td>
<td>40.85</td>
<td></td>
</tr>
<tr>
<td><strong>Sandringham (acute)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMAF score ≥ -15</td>
<td>355</td>
<td>44.43</td>
<td>34.28</td>
<td></td>
</tr>
<tr>
<td>SMAF score ≤ -15</td>
<td>137</td>
<td>27.37</td>
<td>19.88</td>
<td></td>
</tr>
</tbody>
</table>

Note: SMAF score ≤ -15 is indicative of moderate to severe loss of autonomy

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Clinical implications

- Patient related variables and occupational therapist clinical time use differ significantly between hospitals.
- Age and SMAF score predict a small amount of occupational therapist clinical time use.
- Insufficient to inform workforce planning models.
- Results are comparable with previous literature.
Future directions

Research directions:

Predictive workforce planning
- Only 5.9-10.9% of time predicted by current model
- Trial multi level modelling analysis with additional variables to potentially improve predictive power and inform workforce planning

Ratio based workforce planning
- Average occupational therapist time per day was site specific for 77% of patients
- Workforce could be based upon average occupational therapist time use per day per patient

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Future directions

- Occupational therapy time use is:
  - Complex and difficult to understand
  - Person specific
  - Impacted by a range of factors

- This inherent variability will make development of workforce planning models challenging

- Further research required to develop workforce planning models

Alfred Health
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Thank-you

Questions?

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