Recommendations for environmental modification: The reliability of using digital photographs, environmental measurements and a functional status report to assess home access

Bianca Summers
BOT (Hons)/ BBSc
Occupational Therapist – Southern Health
Presentation Overview

- Background and Literature
- Research Aims
- Methodology
- Results
- Discussion points
- Conclusions
- Future research
- References
Background and Literature Review

• Population ageing $\rightarrow$ decreased health status of Australia
  
  (ABS, 2006b)

• Increasing demands on health care for more efficient discharges
  
  (AIHW, 2004), (ABS, 2006a)

• Discharging older adults into their own home earlier reduces these pressures
  
  (Stark, 2004)

• Occupational therapy models support elderly to ‘age in place’
  
  (Townsend et al., 2002)
Background and Literature Review

(Townsend et al., 2002)
Background and Literature Review

- Research supports home visits to improve safety, independence and function in the home (Beswick et al., 2008)
- However, home visits are increasing in frequency and time commitment (Welch & Lowes, 2005)
- Therefore, what are alternative solutions?
- Possible solutions to increase efficiency include completion of home visit assessments from ‘off-site’ (Craig & Patterson, 2005; Sanford & Butterfield, 2005)
Aims:

• Determine the *reliability* of using digital photographs with environmental measurements and a functional status report to make recommendations for environmental modifications of a **home** access (remote home visit)

• Investigate *occupational therapists’ views* regarding the potential use of this alternative option to provide modification recommendations
Methodology - Procedure

Stage 1:
Ethics approval and recruitment of participants

Stage 2:
*Home visit OTs*: Complete home access assessments during routine home visits, providing modification recommendations and rationale at the home access

Stage 3:
Home access forms photocopied with recommendations and rationales removed
Stage 4: 
*Digital photo OT* makes environmental modification recommendations from home access form and digital photographs

Stage 5: 
Focus group run with *Home visit OTs* and an semi-structured interview completed with the *Digital photo OT*

Stage 6: 
Quantitative and qualitative data analysed by researcher
### Results - Descriptive

<table>
<thead>
<tr>
<th>Patients:</th>
<th>Occupational Therapists:</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 12</td>
<td>N = 4</td>
</tr>
<tr>
<td>Mean age= 79 (SD = 9.3yrs)</td>
<td><em>Home visit</em> occupational therapists</td>
</tr>
<tr>
<td>Home access points assessed: N = 25</td>
<td>N = 1</td>
</tr>
<tr>
<td></td>
<td><em>Digital photo</em> occupational therapist</td>
</tr>
</tbody>
</table>

12 home modification recommendations categories (e.g. declutter environment, install vertical rail, door alterations)
Results - Quantitative

Hazards identified:

*Home visit OT* – Mean # 1.70 (min 0, max 3)

*Digital Photo OT* – Mean # 2.43 (min 0, max 4)

Number of Recommendations:

Home visit OT- Mean # 1.80 (min 0, max 4)

Digital Photo OT- Mean # 3.84 (min 1, max 7)

Agreement between recommendations:

- 79% agreement between home visit and digital photograph recommendations
- Kappa, chance corrected agreement of 0.31 (fair)
Results - Qualitative

Identified themes & sub-themes

1) Information seeking
   • Needing more information
   • Problems with limited information
   • Client centred approach
   • Person-Environment-Occupation (PEO) fit

2) Making use of digital photographs
   • Improvements in communication
   • Preplanning
   • Efficiency of service delivery
Discussion

Quantitative
• Results appear similar to previous research (Sanford & Butterfield, 2005; Sim, 2006)
  • Kappa statistic less than prior research. Explained by high agreement low Kappa paradox (Feinstein & Cicchetti, 1990)

Qualitative
When completing the ‘off-site’ home visit assessment, occupational therapists want:
• more information from digital photographs and functional status report
• contact with the patient
When considering quantitative and qualitative data combined there are interesting findings:

- The *digital photograph OT* recognised significantly more hazards and made significantly more modification recommendations.

- The *digital photograph OT* based recommendations for 17% of accesses from assumptions.

- The occupational therapists felt they lacked a thorough understanding of the patient.
Discussion

It is possible that the *digital photograph OT*:

- ‘Erred’ on the safe side due to lack of information (Hoenig, et. al, 2006)
- Struggled with clinical reasoning due to lack of information
- Struggled to generalise patient functional status to their actual modification needs
Limitations

- Small sample size
- Large number of categories of modification recommendations
- The study assessed home access only
- Home access assessment form lacked some required information
- Varying quality and grayscale printing of digital photographs
Conclusion

Fair inter-rater reliability indicates this alternative method:

- could be useful to replace simple home visits
  → However, this may impact on clinical reasoning, accuracy and number of recommendations
Conclusion

Given the fair reliability, the digital photo assessment tool may be more appropriate to:

• Supplement standard home visits and referrals

• Provide pre-admission information for therapists to pre-plan equipment needs on discharge

• Be adapted to complete home visits for people living in remote communities
Future research

• Further development of the home access assessment form

• Reliability of modification recommendations and equipment prescription in other areas of the home

• Inclusion of patient interviews in the remote home assessment procedure

• Benefits of using digital photographs in conjunction with standard home visits
References


Any Questions???

Acknowledgements
Janet Fricke - La Trobe University
Ralda Bourne - St Vincent's Health

Contact details:
Bianca Summers
Occupational Therapist
Monash Medical Centre
Phone: 95942270
Email: bianca.summers@southernhealth.org.au