

The effectiveness of functional assessments for people with dementia

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CLINICAL SCENARIO

Assessing the functional level of individuals with dementia is an important part of occupational therapy. Often prediction of a client's functional performance in his or her home environment is made by evaluating performance assessments carried out in a clinical setting (Park, Fischer & Velozo, 1994). With an ever increasing push by the government for the elderly to remain in their own homes, as well as the knowledge held by occupational therapists and clients, that an unfamiliar environment obstructs task performance (Nygard, Bernspag, Fisher & Winbald, 1994), the issue arises around whether a client's performance in the clinical setting is a true and accurate representation of their performance at home.

FOCUSED CLINICAL QUESTION

What is the evidence that the environmental context in which functional assessments are conducted in effects the functional performance of the individual with dementia?

SUMMARY OF SEARCH, 'BEST' EVIDENCE' APPRAISED, AND KEY FINDINGS

There is limited research on the impact that the environment has on functional assessments, related to patients with dementia. The two articles, Tullis & Nicol (1999) and Hoppes, Davis & Thompson (2003), chosen for this appraisal were considered 'best evidence' in addressing the focused clinical question. The key findings of both articles identified that the environment does have an effect in some areas on the functional performance of individuals with dementia. However the evidence presented in the articles can not be considered of a high quality due to research design and methodological factors. The findings do however present a sound basis to further research and exploration on the effect of the environment in assessing functional performance for individuals with dementia.

CLINICAL BOTTOM LINE

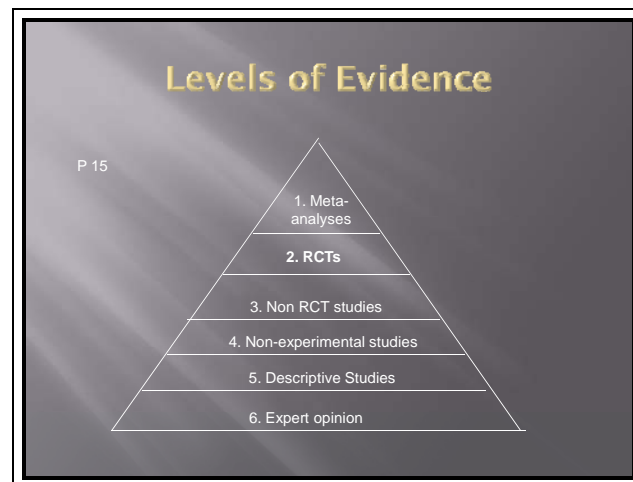
Though clinical assessments may accurately reflect the performance of cognitive and instrumental activities of daily living, there is evidence to suggest that a clinical assessment of *motor performance skills* in the home may not be an accurate representation of a person's functional performance. The difference in motor skill performance between functional assessments conducted in the home and in a clinical setting supports the idea that the environmental context does effect functional performance in certain skills.

LIMITATION OF THIS CAT

This critical appraisal has been peer reviewed by one lecturer as part of an assignment.

SEARCH STRATEGY

The search strategy was aimed at locating studies of evidence at the level defined by Fletcher and Sackett (Canadian Task Force on the Periodic Health Examination, 1979 as cited in Taylor 2003).



Terms used to guide Search Strategy:

Patient/client group: elderly, older person, dementia OR Alzheimer's, home setting, clinical setting, environmental context

Intervention: occupational therapy, occupational functional assessment

Comparison: home setting, clinical setting, other context

Outcomes: occupational therapy, function, ADL, activities of daily living

A database search was undertaken using CINAHL, PubMed (Medline), The Cochrane Library and Google Scholar. Where articles relevant to the topic were not available online a search was carried out in the Bill Robertson library to locate the journal articles. Reference checking of the articles produced additional articles and book chapters which were followed up through a manual search of the library.

INCLUSION AND EXCLUSION CRITERIA

Inclusion criteria:

- Assesses dementia in early to moderate stage
- Focuses on elderly population (65+)
- Articles less than 10 years old
- Addresses functional assessment in a home and clinical context
- Article is available on database or at Bill Robertson library.
- Published by health professionals and relative to occupational therapy

Exclusion criteria:

- Articles over 10 years old
- Assesses later stages of dementia
- Does not focus on environmental context
- Article has not been peer reviewed
- Publication not available in English

RESULTS OF SEARCH

Study Design/Methodology of articles retrieved	Level of evidence	Author (Year)
Systematic review	1	Tullis & Nicol, 1999
Case study design <i>quasi-experimental design</i>	3	Hoppes, Davis & Thompson, 2003
Controlled Clinical Trial (CCT)	3	Hoppes, Davis & Hasbro, 2005
Controlled Clinical trial	3	Albert, Bear-Lehman, Burkhardt, Merete-Roa, Noboa-Lemonier & Teresi, 2006

Case study design	3	Staples, 2003
Randomized Control Trial (RCT)	2	Cooke, Fisher, Mayberry & Oakley, 2000

BEST EVIDENCE

The two articles identified as 'best' evidence and selected for critical appraisal are:

- Hoppes, S., Davis, L. A., & Thompson, D. (2003) Environmental effects on the assessment of people with dementia: A pilot study. *The American Journal of Occupational Therapy*, 57(4), 396-402.
- Tullis, A., & Nicol, M. (1999). A systematic review of the evidence for the value of functional assessment of older people with dementia. *British Journal of Occupational Therapy*, 62(12), 554-563.

Reasons for selecting these articles included:

- Articles represented different types of evidence (quantitative study and systematic review).
- Target population.
- Met all other inclusion/exclusion criteria.
- Published in occupational therapy journals.

SUMMARY OF BEST EVIDENCE

SYSTEMATIC REVIEW

Questions used to guide the critical review taken from Taylor, (2003), *Appraising critical reviews*, pg 87.

Tullis, A., & Nicol, M. (1999). A systematic review of the evidence for the value of functional assessment of older people with dementia. *British Journal of Occupational Therapy*, 62(12), 554-563.

1. VALIDITY OF RESULTS

Did the review address a clearly focused question?

The focused issue of this review is to find evidence for the value of functional assessments of older people with dementia. Within this broad topic the reviewers have identified the following three key strands of enquiry relating to functional assessment:

1. The design or evaluation of functional performance measurement tools for specific use with older people with dementia.
2. The exploration of the influence of context.
3. The exploration of the views held by family, caregivers and the person with dementia.

Parameters of the review are stated clearly. The population included were people aged 65 years and over with a diagnosis of dementia. This included Alzheimer's-type dementia, vascular dementia and suspected dementia. *The International Classification of Disease 10* (ICD 10) was used for the review, defining a diagnosis of dementia requires impairment in functional competence.

Do you think the important, relevant studies were included?

The published literature was extensively searched, using a combination of electronic databases (CINAHL, Medline and PsychLit), the internet and manual searching using key words (elderly, dementia, and functional assessment). Sixteen studies were identified by the authors from the search although sources were not specified. The reviewers have not stated whether reference lists have been followed up from the articles obtained, creating the possibility useful studies may not have been identified.

Did the reviewers establish clear inclusion and exclusion criteria for the identified studies?

The inclusion and exclusion criteria for selecting studies are clearly stated:

Inclusions:

- Published material, research or based on research
- 1989 onwards
- Specific to key words, including dementia of Alzheimer's-type, vascular dementia and suspected dementia.
- Articles that related to the above and outlined factors that appeared to enhance or diminish the value of functional assessment.

Exclusions:

- Not specific to key words
- Dementia under 65 years of age

It is not clear whether more than one of the authors was involved in the search and inclusion/exclusion screening of the studies identified. The authors' state the inclusion/exclusion criteria was 'rigorously' applied to ensure focus on the question but how this was carried out and achieved is not stated. Therefore an inclusion/exclusion bias can not be ruled out. There is no mention of the number of studies that did not meet the inclusion criteria and if applicable, the reasons why.

Did the review's authors do enough to assess the methodological quality of the included studies?

The methodologies of the included studies in the review are outlined at the beginning of each of the three sections. A table summarizing methodological components including the inclusion/exclusion criteria and the limitations of each study is provided. Although there is no specific criteria clearly stated for appraising the quality of research included in the review, where appropriate the authors have made comment on the readers ability to appraise the findings critically.

If the results of the review have been combined, was it reasonable to do so?

The 16 studies selected for this review were not combined. The results in each of the three sections were summarized and presented in separate narrative tables. Due to the heterogeneity of the three strands of enquiry, a statistical synthesis was not appropriate.

4. RESULTS

If a meta-analysis and synthesis was used, were the methods of meta-analysis appropriate and clearly justified?

Narrative form was used to present the findings of the review. As stated above a meta-analysis was not appropriate due to the heterogeneity of the three strands of research.

What is the overall result of the review?

The individual characteristics and key results for each of the studies identified in this review are presented in narrative form. Within the three sections comparisons are made between the studies with conclusions and recommendations provided. As there was no statistical analysis provided for the studies statistical significance does not apply. Though it is important to note that on occasion the author has included that certain studies showed no statistical significance, reasons for this are not provided. The authors conclude that the outcome of the systematic review demonstrates that there is minimal high quality evidence to support or refute current home assessment strategies for older people with dementia.

How precise are the results?

As the information is presented solely in narrative form with no statistical evidence or overall synthesis between the three sections, the validity and reliability can not be assumed as being high. Therefore this review does not offer high quality evidence for value of functional assessment of older people with dementia.

Conclusions and recommendations

Throughout the exploration of the three categories identified in the review, the authors conclude by suggesting that within occupational therapy there is a tendency to dwell singularly on the use and evaluation of standardized scales for home assessment. The authors highlight that it is important to consider other equally important factors that can influence the functional performance of people with dementia, that is, the influence of the environment and the need to effectively involve the patient and key caregivers in occupational therapy assessment.

Drawn from the literature reviewed the authors suggest four aspects to consider when assessing the functional performance of people with dementia to ensure safety and well being on discharge from hospital:

1. The functional performance of the person with dementia should be assessed in his or her own setting.
2. The views of the person with dementia should be elicited where possible, especially in the early stages of illness.
3. The use of proxy respondent is acceptable in severe dementia.
4. Validated/standardized scales are useful although no one scale emerged as the definite instrument.

It is acknowledged that in relation to these four aspects, evidence is limited both in quality and quantity. The authors recommend further research and evaluation to explore the significance of a single discharge home assessment.

QUANTITATIVE STUDY

Questions used to guide the critical review taken from Law, Stewart, Pollock, Letts, Bosch, & Westmorland, (2008), *Critical Review Form – Quantitative Studies*.

CITATION	Hoppes, S., Davis, L. A., & Thompson, D. (2003) Environmental effects on the assessment of people with dementia: A pilot study. <i>The American Journal of Occupational Therapy</i> , 57(4), 396-402.
STUDY PURPOSE Was the purpose stated clearly? Yes	Outline the purpose of the study. How does the study apply to your research question? The purpose of the study is to use a standardized assessment, the <i>Structured Assessment of Independent Living Skills (SAILS)</i> to explore the effects of environment on functional performance of individuals with dementia. The research question developed to achieve this purpose is clearly stated by the authors ' <i>Do individuals with dementia perform differently on a standardized assessment of independent living skills administered in three environments: clinic, adult day-services facility and home?</i> ' This study relates specifically to the selected research question, looking at the environmental influences in which functional assessments are conducted and how this effects the functional performance of the individual with dementia. Published in an occupational therapy journal the article is relevant to the profession. It includes an extensive literature review specific to functional assessment in occupational therapy, providing conclusions and recommendations for

	therapists in practice.
LITERATURE Was relevant background literature reviewed? Yes	Describe the justification of the need for this study: Background literature has been thoroughly researched and reviewed and included in the introduction of the study. The authors have included research that provides different conclusions about the environments effect on assessment of functional skills in older adults. The authors note there is currently little research that specifically focuses on the issue among older adults with dementia. For this reason and with consideration into the importance of the environments effect on performance for people with dementia, justification for the study is clear. The authors state if evidence indicates that environment does not influence assessment of independent living skills, then clinical assessments are valid for recommending relocation to a nursing home. If evidence indicates that environment is a factor, clinicians would be compelled to assess performance in non clinical environments before making recommendations.
DESIGN Case study design	Describe the study design. Was the design appropriate for the study question? (e.g., for knowledge level about this issue, outcomes, ethical issues, etc.) A case study approach was employed using a quasi-experimental design to explore the effects of environment on the assessment of people with dementia. This type of design does not have a control group and as Law et al (1998) explains, is carried out to provide descriptive data about the relationship between a particular environment and an

	<p>outcome of interest. In this study the environment (independent variables) are the three settings for the assessments (clinic, adult day-services facility and home) and the outcome of interest (dependant variables) are the participants' performances of functional tasks, as represented on the scores on the SAILS.</p> <p>A quasi-experimental design was appropriate for addressing the research question. It is clearly stated by the authors that it is a pilot study with the purpose to generate information to either support or refute further research on this topic.</p> <p>Specify any biases that may have been operating and the direction of their influence on the results:</p> <p>Sample bias. As participants were volunteers, this creates a potential bias that the participants are more motivated and concerned for their health as opposed to non-volunteers. Also how the participants were recruited is not stated.</p>
<p>SAMPLE</p> <p>N = 12</p> <p>Was the sample described in detail?</p> <p>Yes</p>	<p>Sampling (who; characteristics; how many; how was sampling done?) If more than one group, was there similarity between the groups?</p> <p>There were 12 participants (6 male, 6 female) in the study. Each participant had been diagnosed with dementia within the last year and was a regularly attendee of adult day services. All participants resided with family members and lived in the community. The mean age of participants was 80.5 years with a range of 72 to 88 years.</p>

<p>Was sample size justified?</p> <p>Yes</p>	<p>The authors stated the sample size of the study was adequate to detect differences in motor performance between home and a clinical environment. Recommendation is given for a greater number of participants in future research to detect other differences that may exist (examples of possible differences are not given)</p> <p>Describe ethics procedures. Was informed consent obtained?</p> <p>Participation in the study was voluntary with informed consent obtained from caregivers and participants prior to the study. Informed consent for the study was approved by the Institutional review board.</p>
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<p>OUTCOMES</p> <p>Were the outcome measures reliable?</p> <p>Yes</p> <p>Were the outcome measures valid?</p> <p>Yes</p>	<p>Specify the frequency of outcome measurement (i.e., pre, post, follow-up):</p> <p>The selection of the MMSE was well justified for its use in establishing each participants degree of dementia prior to administration of the SAILS. The authors state the MMSE was selected because of its demonstrated reliability and validity in measuring cognitive function. Statistical evidence of this is given.</p> <p>The SAILS was used as the outcome measure to measure the functional abilities of the participants in the study. The assessment contains 50 items organized into 4 sections, <i>motor, cognitive, instrumental</i> and <i>social interaction</i>.</p>
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	<p>The authors have justified the use of this assessment and have provided sufficient information on the development of the assessment, the reliability and validity of the measure and correlations with other established measures.</p>	
	<p>Outcome areas:</p> <ul style="list-style-type: none"> • To establish participants degree of dementia. • To measure functional abilities and assess skills of individuals with dementia. 	<p>List measures used:</p> <ul style="list-style-type: none"> • MMSE • SAILS Assessment
<p>INTERVENTION</p> <p>Intervention was described in detail?</p> <p>Yes</p> <p>Contamination was avoided?</p> <p>N/A</p> <p>Co intervention was avoided?</p> <p>N/A</p>	<p>Provide a short description of the intervention (focus, who delivered it, how often, setting). Could the intervention be replicated in practice?</p> <p>The authors have described the procedures of the study in detail. With the MMSE scores obtained prior to administration, the SAILS was conducted in the three environments, the participants home, in the adult day-services centre and in the occupational therapy laboratory at a university.</p> <p>Four raters were involved in carrying out the assessments with no rater assessing a participant more than once. Raters were blind to participants' previous results in the different environments and to the overall results of the pilot study until all the assessments were complete.</p> <p>The order of the three test environments and who of the raters would be performing the assessment was randomized for each participant. Administration between assessments was at least a week apart with the length of each assessment on average</p>	

	<p>lasting 1 ½ to 2 hours.</p> <p>The authors state measures were taken to establish inter rater reliability. The standardized administration and scoring procedures established by Mahurin et al, (1991) for the SAILS were followed within the team of assessors.</p>
<p>RESULTS</p> <p>Results were reported in terms of statistical significance?</p> <p>Yes</p> <p>Were the analysis method(s) appropriate?</p> <p>Yes</p>	<p>What were the results? Were they statistically significant (i.e., p < 0.05)? If not statistically significant, was study big enough to show an important difference if it should occur? If there were multiple outcomes, was that taken into account for the statistical analysis?</p> <p>The statistical results have been provided in two tables which clearly summarize the learning effects from repeated assessments (Table 3) and the mean SAILS scores across the three settings (Table 4).</p> <p>Table 3: The results show there was no evidence of a learning effect from repeated assessments as determined by a repeated analysis of variance p= 0.4384</p> <p>Table 4: The summary of mean SAILS scores shows a comparison of performance variables between the three settings. The results show no difference among the home, clinic and day-services settings on the total SAILS scores but clearly highlight an increased motor score in the home environment in the performance of motor tasks.</p> <p>Post hoc, pair-wise comparisons were carried out revealing that participants mean motor scores were 3.5 points higher at home than in a clinical setting. Thus the results for motor tasks in the home environment are statistically significant p=0.0138</p>

<p>Clinical importance was reported?</p> <p>Yes</p>	<p>What was the clinical importance of the results? Were differences between groups clinically meaningful?</p> <p>The results indicate participants with dementia performed better on motor tasks in a familiar environment than in an unfamiliar environment. Though clinical assessments of cognitive, instrumental and social activities may accurately reflect performances in more familiar environments such as the home, clinical assessments should <i>not</i> be used to predict motor performances in the home.</p>
<p>Drop-outs were reported?</p> <p>Yes</p>	<p>Did any participants drop out from the study? Why? (Were reasons given and were drop-outs handled appropriately?)</p> <p>There were no drop outs in the study of 12 participants. It is important to note that two of the participants were assessed in two settings only - the clinic and home setting. Reason was given for this, one participant did not regularly attend adult day-services and one experienced an illness that prevented completion of the third assessment.</p>
<p>CONCLUSIONS AND IMPLICATIONS</p> <p>Conclusions were appropriate given study methods and results</p> <p>Yes</p>	<p>What did the study conclude? What are the implications of these results for practice? What were the main limitations or biases in the study?</p> <p>The study investigated the performances of individuals with dementia in a variety of functional tasks in three different environments.</p> <p>The implementation of the SAILS to assess functional performance showed motor performance was significantly better at home than in an unfamiliar environment. The authors conclude suggesting that the ability to adapt movement to an unfamiliar environment may decline with the onset and</p>

	<p>progression of dementia.</p> <p>The authors offer recommendations for further research into the validity of research tools used with individuals with dementia in different environments. They encourage therapists to be responsive to the environmental effects on performance proposing that though time consuming to assess clients in specific settings of interest, this is often the most valid way to determine functional performance in those settings.</p> <p>Limitations identified in the study:</p> <p>The sample size was adequate for the pilot study, though in order to detect further differences that may exist in the functional assessment in different environments a larger population is needed.</p> <p>Inter-rater reliability was addressed appropriately though due to time constraints assessments were not double scored among examiners across the environments.</p> <p>As participants lived with family members for varying lengths of time, the familiarity with home environments varied between participants.</p>
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IMPLICATIONS FOR PRACTICE, EDUCATION and FUTURE RESEARCH

The two articles reviewed both conclude that there is currently minimal high quality evidence to support or refute the degree of effect the environmental context has on

assessments with dementia patients. However both articles do offer valuable evidence that indicates further research and exploration is necessary into the environmental effects on functional performance for individuals with dementia.

Though the evidence presented in the systematic review by Tullis & Nicol (1998) supports the proposal, the articles selected for inclusion in the review lack sufficient credibility due to either statistical insignificance or methodological factors.

Evidence presented in the case study by Hoppes et al (2003) uses a standardized assessment to measure the effect of the environment. The SAILS assessment is well justified and proves statistical significance in relation to the notion that a patient does perform better in their own environment. Though statistical significance is evident in assessing *motor performance skills* in different settings, the study does have limitations that must be considered, in particular the use of a pilot study design and small sample size of the study.

Relevant to occupational therapy practice, the research findings provide some useful evidence to support the need for further research into this topic. At present the level of evidence does not justify modification of current assessment practices when assessing functional performance for individuals with dementia. Time constraints, funding and limited standardized assessment tools available for assessing individuals in different settings, are all factors that need to be considered by occupational therapists.

Nevertheless the growing body of evidence indicates that therapists need to be sensitive to environmental effects on performance. While it can be time consuming to assess clients in specific settings, this may be the best way in determining a clients functional performance in that setting.

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