Evaluating ADL measures from an occupational therapy perspective

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Key words
- Activities of daily living
- Outcome measures
- Action research
- Nominal group technique

Abstract

Background. Measures reflecting occupational therapy’s conceptualization of occupational performance support the profession's contribution to evidence-based practice and fiscal accountability. Purpose. This study compared measures of performance-based activities of daily living (ADL) with principles of occupational therapy practice and intended outcomes. Methods. Using an action research study design, occupational therapists and researchers (N=13) systematically clarified the clinical problem, identified occupational therapy principles inherent to the assessment of daily living activity via nominal group technique; defined the key principles as constructs; and reframed these constructs as a questionnaire against which 18 published standardized ADL measures were evaluated. Findings. Participants identified six measures as most congruent with principles of occupational therapy practice: ADL Profile, Assessment of Motor and Process Skills, Functional Performance Measure, Rivermead ADL Assessment, Edmans ADL Index, and Melville-Nelson Self-Care Assessment. Implications. Findings guide occupational therapists' search and use of performance-based ADL measures that demonstrate the profession's distinct health care contribution.

Fiscal accountability (Dobrzykowski & Lieberman, 2000) and evidence-based practice (Dunn, 2005; Law & Baum, 1998; Tickle-Degnen, 1999) are driving forces that necessitate the documentation of intervention efficacy in health care. Occupational therapists advocate the use of assessment procedures and intervention-efficacy outcomes that reflect the profession's conceptualization of occupational functioning (Backman, 2005; Department of National Health and Welfare & Canadian Association of Occupational Therapy, 1987; Law, Baum, & Dunn, 2005). Gillette (1991) wrote: “The basic concepts of a profession should be reflected through the tests and measurements used in its practice. For occupational therapy, this means functional assessments of performance based on tests that measure change in occupational performance” (p. 565). Performance-based measures, which comprise the aims and accepted principles of occupational therapy intervention, enable practitioners to demonstrate the profession’s unique contribution to health care.

Based on occupational therapy principles, activities of daily living (ADL) have historically been a key component of practice (Christiansen, 1991b; Townsend et al., 1997), but the number of studies that document occupational therapy efficacy outcomes is limited (Letts & Bosch, 2005). One possible reason is that occupational therapy efficacy-study outcomes may be compromised if the ADL measures used do not adequately capture the objectives of occupational therapy assessment and intervention as guided by the profession's values, beliefs, and principles.
Changes within the health care system have created an emphasis on the functional status of individuals and resulted in a variety of professionals’ (e.g., physical therapists, nurses, neuropsychologists) publishing ADL outcome research. Frequently ADL outcomes are based on generic scales of functional independence, such as the Functional Independence Measure (Gutman, 1998; Heinemann, 2000). The use of generic scales allows comparisons of outcomes across diagnostic categories and health care providers but limits the recording of discipline-specific input.

Law (1993) reminded us that ethical and philosophical principles and perspectives are reflected in the construction of measures. The values, beliefs, and principles on which a measure is developed may not be explicitly stated, but they are frequently embedded within the measure’s conceptual basis, item inclusion, standardization, and scale design. For example, a measure is not congruent with the occupational therapy values of choice and client-centredness if the measure design does not recognize the independence of a client who uses a technical aid or hires a personal care assistant.

This study used a collaborative practitioner-researcher action research study design to examine published, standardized performance-based ADL measures developed for adult/geriatric populations and then draw conclusions about which best matched occupational therapy practice principles.

**Methods**

The key motivator for this study was the dissonance between occupational therapists’ need to demonstrate efficacy and their feelings about the lack of adequate performance-based ADL measures. Occupational therapists employed in a large tertiary-care rehabilitation hospital expressed concern that the ADL measures they used in their day-to-day practice did not always identify factors that they deemed important from their clients’ and their own professional perspective. Nor did they adequately capture the outcomes that occupational therapists emphasize during their intervention. Action research was the chosen research strategy because it enabled therapists, who identified the problem, to participate in a process that systematically addressed their concerns and resulted in change (Wallis, 1998/99). When using action research, researchers and practitioners collaborate to examine and consider the problem, then plan for and effect change as they progress through a cyclical process toward resolution (Denscombe, 1998; Stringer, 1999).

The Regional Ethics Review Board approved the study. Occupational therapist participants provided informed consent in keeping with approved ethical practice standards.

**Participants**

Ten occupational therapists from one tertiary-care rehabilitation hospital, who voiced the initial concern regarding the clinical issue, and three researchers collaborated in this action research process. The therapists had a diversity of clinical experience with adult/geriatric clients diagnosed with a physical dysfunction, an average of 10.6 (SD=5.3) years of experience as occupational therapists, and an average of 9.3 (SD=5.4) years of experience in adult/geriatric rehabilitation. Two researchers held clinical research positions within the hospital, and one university researcher had extensive experience using qualitative methodology.

**Study design**

The study comprised three phases, each following the action research process of looking, thinking, and acting (Stringer, 1999).

**Phase 1. Problem identification**

Existing ADL measure reviews (e.g., Christiansen, 1991b; Law, 2002b; Law & Letts, 1989; McDowell & Newell, 1996; Unsworth, 1993) were examined. The reviews included information on the measure’s purpose, psychometric properties, and clinical utility. Despite literature stressing the need for outcome measures to reflect professional practice (Backman, 2005; Corr & Siddons, 2005), the published reviews had limited information on the ADL measures as they related to occupational therapy practice. Participants posited that the concept of ADL, as used in the design of measures, was not always compatible with the constructs important for occupational therapy process and outcome. This led to the second phase, when participants identified constructs that were fundamental for occupational therapy.

**Phase 2. Construct identification and the development of a rating scale to evaluate performance-based ADL measures**

Participants chose the Canadian Model of Occupational Performance (CMOP) practice model as a basis for agreeing on the critical criteria of principles of occupational therapy practice. The CMOP was developed as an occupational therapy practice guideline (Townsend et al., 1997) and endorsed by the Canadian Association of Occupational Therapists. An author of the book Enabling Occupation: An Occupational Therapy Perspective (Townsend et al.) provided a participant training session to ensure uniform understanding of the practice model, including the values, beliefs, and principles that underpin occupational therapy practice.

A second training session helped participants understand the nominal group technique (NGT), used during construct identification. NGT is a group consensus method (Fink, Kosecoff, Chassin, & Brook, 1984) described in the occupational therapy literature (Steward, 2001) that provides a balance between individual item generation and group discussion to prioritize items.

To facilitate understanding of the concept of “construct,” participants examined the construct of cognition and
reviewed a cognitive assessment used by occupational therapists with the CMOP practice model.

Participants met to identify and agree on the important constructs of occupational therapy practice, using NGT. The 10 therapists divided into three subgroups and brainstormed the constructs they believed to be inherent in the CMOP that related to the definition and measurement of ADL. The group reconvened, and each therapist identified one construct from his or her small-group brainstorming list and discussed the construct’s importance as it pertained to ADL and the intention and practice of occupational therapy. This process continued until the list of constructs was exhausted. Gaps were identified and additional constructs were added (See Figure 1: Step One).

When all constructs were identified, participants individually ranked 8 of the 16 constructs. Researchers collated the rankings and presented the results to the group, including the mean rank (See Figure 1: Step Two).

![Figure 1](image)

**Step One.** All identified constructs.

- Client-centredness
- Control
- Uniqueness of how task can be completed
- Pre-existing role definitions, new role, cultural definitions
- Meaningful activity
- Functional ability within client’s typical environment
- Resources, cultural role, social support, education
- Client ability to learn and accept (aware of deficits and resources);
- Holistic perspective
- Pre-morbid status
- Client’s level of risk taking
- Depth (qualitative) aspects of assessment
- Dynamic interaction between person/environment/task
- Financial ability to access resources
- General level of communication
- Client ability to solve problems
- uniqueness of individual (motivation, spirituality)

**Step Two.** List of constructs ranked through nominal group technique.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Construct</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Holistic perspective</td>
<td>7.2</td>
</tr>
<tr>
<td>2</td>
<td>Client-centredness</td>
<td>6.7</td>
</tr>
<tr>
<td>3</td>
<td>Dynamic interaction</td>
<td>6.2</td>
</tr>
<tr>
<td>4</td>
<td>Functional ability</td>
<td>4.2</td>
</tr>
<tr>
<td>5</td>
<td>Resources</td>
<td>3.8</td>
</tr>
<tr>
<td>6</td>
<td>Meaningful activity</td>
<td>3.8</td>
</tr>
<tr>
<td>7</td>
<td>Uniqueness</td>
<td>3.4</td>
</tr>
<tr>
<td>8</td>
<td>Control</td>
<td>2.8</td>
</tr>
</tbody>
</table>

**Step Three.** Final list of defined constructs.

1. **Holistic**
   A view of persons as whole beings integrated in mind, body, and spirit (incorporates the whole picture of the client: roles, gender, culture, resources, performance components, the physical environment, social supports, spiritual beliefs, and values). Holism was viewed as a construct that must be considered within all aspects of the client’s life and thus incorporated within all other constructs.

2. **Client-Centred**
   Respect for clients (values and beliefs systems), involve clients in decision making and recognize the client’s experience and knowledge. Reflects a collaborative approach wherein relevant goals and optimal outcomes can be mutually agreed upon.

3. **Dynamic Interaction**
   Recognition of the dynamic relationship between the person, environment, and task.

4. **Uniqueness of Individual**
   The inherent attributes of the person, including affect and physical, cognitive, and spiritual aspects (what does the person bring to the task of ADL or success with the ADL task)

5. **Uniqueness of Performance**
   The process is meaningful only in that it is acceptable to the client and meets safety standards. Emphasizes recognition of the client’s definition of task success as either a process towards achievement or the product of achievement (while recognizing the need to ensure safety standards
During the ensuing discussion, participants determined that some constructs overlapped or subsumed others. The list was consolidated into five constructs: (1) holism; (2) client-centred practice; (3) dynamic interaction; (4) uniqueness of the individual; and (5) uniqueness of performance, and defined by participants in occupational therapy terms (See Figure 1: Step Three).

This list was developed into a series of questions (See Figure 2) and formatted into the ADL Construct Rating Review Form (See Figure 3), for use when evaluating ADL measures for congruence with occupational therapy practice. The format of the rating review form approximated the process outlined in the Dynamic Performance Analysis framework (Polatajko, Mandich, & Martini, 2000).

To ensure that the original constructs were captured in the rating form, the two clinical researchers compared it with the original nominal group constructs. Two therapists rated an ADL measure to pilot the use of the rating form for its utility. The clinical researchers made subsequent modifications to clarify wording.

Phase 3. The process of rating ADL measures for those that best fit with principles of occupational therapy
A second literature search was conducted using CINAHL, MEDLINE, OT Source, and books of previously reviewed

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**Figure 2**
Initial construct question development

<table>
<thead>
<tr>
<th>Construct</th>
<th>Question 1</th>
<th>Question 2</th>
<th>Question 3</th>
<th>Question 4</th>
<th>Question 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holism</td>
<td>1.1 Embedded within constructs 2-5.</td>
<td>2.1 Does the measure identify what the client values?</td>
<td>2.2 Does the measure identify tasks important to the client and success as defined by the client rather than by a standardized process?</td>
<td>2.3 Does the measure allow the client to use alternate methods or processes to accomplish the task and thereby address role expectations, cultural values, time restraints, etc.?</td>
<td>2.4 Does the measure reflect a collaborative approach (e.g. allow the client to identify more important components, etc.)?</td>
</tr>
<tr>
<td>Client-Centred</td>
<td>2.5 Does the measure enable the client to prioritize what he or she wishes to work on and achieve?</td>
<td>2.6 Does the measure allow for making informed decisions about taking risks?</td>
<td>2.7 Does the test only have a total score or can it be done in components valued by the client?</td>
<td>3.1 Does the measure recognize or acknowledge interaction between person/environment/task?</td>
<td>3.2 Does the measure recognize successful task completion if the task or task process is modified (e.g., use of a sock aid or reacher)?</td>
</tr>
<tr>
<td>Dynamic Interaction</td>
<td>3.3 Does the test identify the physical environment in which the client will need to use his or her skills and allow consideration of the environment in determining task success (e.g., bathroom accessibility, distractions, clutter, independence across a variety of environments, etc.)?</td>
<td>3.4 Does the measure identify the social support, including the institutional support environment (e.g., client's financial resources to cover equipment costs, family support, caregiver support, culture, home care support, health care system, etc.)?</td>
<td>3.5 Does the measure identify how culture affects the way the ADL task is completed (e.g., use of a bowl or chop sticks, how the culture values independent occupational performance)?</td>
<td>4.1 Does the measure recognize the client's motivation to learn new ways to be independent?</td>
<td>4.2 Does the measure recognize client's willingness to persist with the task to complete it?</td>
</tr>
<tr>
<td>Uniqueness of the Individual</td>
<td>4.3 Does the measure recognize the client's awareness of strengths, challenges, and ability to prioritize tasks, (e.g., decide what the client wants to invest his or her energy in doing)?</td>
<td>4.4 Does the measure recognize/assess the client's implicit knowledge of task demands (e.g., process steps, knowledge of hip precautions, balance limitations, etc.)?</td>
<td>4.5 Does the measure recognize the client's ability to solve problems or offer some solutions to develop independence in ADL tasks?</td>
<td>4.6 Does the measure recognize or allow observation of underlying performance components (e.g., sensation, motor control, perception)?</td>
<td>4.7 Does the measure allow for qualitative observation?</td>
</tr>
<tr>
<td>Uniqueness of Performance</td>
<td>4.8 Does the measure identify the client's role expectations of self and others (e.g., how acceptable it is to get assistance from another family member)?</td>
<td>5.1 Does the measure allow the client to use alternate methods or processes to accomplish the task, and in doing so address role expectations, cultural values, time restraints, and so on?</td>
<td>5.2 Does the measure recognize successful completion of the task if the task is modified for the client to achieve success (e.g., task success vs. “doing it correctly”)?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**ADL Construct Rating Review Form**

This form is intended to be used for reviewing established ADL measures for constructs identified as important for the assessment of ADL in occupational therapy practice. Please keep in mind the following:

- Each question has some examples that were raised to help illustrate this construct. This is not meant to be exhaustive, just to help recall the construct.
- Many of these measures will not have the construct you are looking for outlined clearly in the supporting documentation (that would be too easy!). You will need to examine the measure, the way it has the tester examine ADL, and how the tester scores it to see if that particular construct is "implied" or "inherent" by the way it is structured. For example, the measure may not overtly state that they consider the environment, but it may have a place on the score sheet to describe the test environment. For this reason, we are asking you to comment on what drew you to that conclusion about that particular question. This will be very important for our review.

Score measure based on the following scale:
- (0) Construct not present
- (1) Some elements of construct present
- (2) Construct present

### Construct

<table>
<thead>
<tr>
<th>Construct</th>
<th>Comments:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is the measure client-centred?</td>
<td>Construct question(s):</td>
</tr>
<tr>
<td>1.1 Does the measure allow the tester to identify tasks important to the client?</td>
<td>• 2.1 0 1 2</td>
</tr>
<tr>
<td>• E.g., does the test have a total score or can it be done in components valued by the client?</td>
<td>• 2.4</td>
</tr>
<tr>
<td>• E.g., is the measure comprised of a scoring format that allows the client to prioritize tasks where he or she wants to invest his or her energy?</td>
<td>• 2.5</td>
</tr>
<tr>
<td>• E.g., does the measure acknowledge role expectations of self and others (gender, culture, age, how acceptable it is to get assistance from other family members, how the culture values independent occupational performance)?</td>
<td>• 2.7</td>
</tr>
<tr>
<td>1.2 Does the measure identify if the client is motivated to learn new ways to be independent?</td>
<td>• 4.1 0 1 2</td>
</tr>
<tr>
<td>1.3 Does the measure identify when the client is willing to persist with the task to complete it?</td>
<td>• 4.2 0 1 2</td>
</tr>
<tr>
<td>2. Does the client have a general knowledge of task demands?</td>
<td></td>
</tr>
<tr>
<td>2.1 Does the measure identify the client's knowledge of the task demands?</td>
<td>• 4.4 0 1 2</td>
</tr>
<tr>
<td>• E.g., does he or she know the steps of the task?</td>
<td>• 4.3 0 1 2</td>
</tr>
<tr>
<td>2.2 Does the measure recognize the client's awareness of strengths, challenges, and ability to prioritize tasks, (e.g., decide what he or she wants to invest their energy in doing)?</td>
<td></td>
</tr>
<tr>
<td>2.3 Does the measure allow for making informed decisions about taking risks?</td>
<td>• 2.6 0 1 2</td>
</tr>
<tr>
<td>• E.g., the client is aware that going down to the bottom of the tub may increase the risk of a fall, but that is the way he or she wants to do it.</td>
<td></td>
</tr>
<tr>
<td>3. Is the client's performance competent?</td>
<td></td>
</tr>
<tr>
<td>3.1 Is task competence identified/defined* by the client?</td>
<td></td>
</tr>
<tr>
<td>3.1.1 Does the measure allow for the task success to be defined by the client?</td>
<td>• 2.2 0 1 2</td>
</tr>
<tr>
<td>• E.g., the client has identified getting clean while bathing as a task that requires submersion in a tub bath, not showering.</td>
<td></td>
</tr>
<tr>
<td>3.1.2 Does the measure allow for different ways or processes for completing the task?</td>
<td>• 2.3</td>
</tr>
<tr>
<td>• E.g., task success vs. doing it &quot;correctly&quot;</td>
<td>• 3.2 0 1 2</td>
</tr>
<tr>
<td>• E.g., Task process is only important if the client has identified that as a concern—such as speed of dressing.</td>
<td></td>
</tr>
<tr>
<td>• E.g., allows for how the culture affects the way an ADL task is done (China bowl for eating, rather than with plate, knife, fork).</td>
<td></td>
</tr>
<tr>
<td>3.2 Where is the performance breaking down?</td>
<td></td>
</tr>
<tr>
<td>3.2.1 Does the measure recognize or acknowledge interaction between the person, environment, and task?</td>
<td>• 3.1 0 1 2</td>
</tr>
<tr>
<td>3.2.2 Does the measure allow for qualitative observation?</td>
<td>• 4.7 0 1 2</td>
</tr>
<tr>
<td>3.3 Does the client have the ability (performance components)?</td>
<td></td>
</tr>
<tr>
<td>3.3.1 Does the measure identify or allow observation of underlying performance components (e.g., sensation, motor control, and perception)?</td>
<td>• 4.5</td>
</tr>
<tr>
<td>3.4 Are the demands/supports of the task appropriate for the person's ability and environmental situation (i.e., task modification)?</td>
<td></td>
</tr>
<tr>
<td>3.4.1 Does the measure recognize/identify modifications needed for success?</td>
<td>• 5.1 0 1 2</td>
</tr>
<tr>
<td>• E.g., does the measure identify issues related to time restraints – dressing for work/school vs. less pressured time restrictions?</td>
<td>• 5.2</td>
</tr>
<tr>
<td>• E.g., a client is unable to dress independently due to limited ROM, but would be able to if long-handled aids were available, or a different dressing technique.</td>
<td></td>
</tr>
<tr>
<td>3.5 Are the demands/supports of the environment appropriate for the person's ability and task difficulty?</td>
<td></td>
</tr>
<tr>
<td>3.5.1 Does the measure identify the &quot;assessment&quot; environment and the demands of the &quot;discharge&quot; or &quot;typical&quot; environment?</td>
<td>• 3.3 0 1 2</td>
</tr>
</tbody>
</table>

*Continued on next page*
measures to identify ADL measures meeting the following criteria: (1) based on standardized performance as observed by a therapist; (2) published in peer-reviewed literature; (3) developed for use with an adult/geriatric population with a physical dysfunction. Information pertaining to the ADL measures’ purpose, theoretical foundation, item content, reliability, validity, responsiveness, clinical utility, and scoring was compiled (Polgar, 1998). The primary purpose of the measure selected was to assess personal/basic ADL function, although several measures examined some instrumental ADL.

Of the 93 measures identified through the literature review, 18 met the inclusion criteria, had publications that described item content, and had at least minimal information describing the measure’s reliability and validity. One clinical researcher and 1 of the 10 therapists reviewed each measure. The ADL construct rating review form used a three-point Likert scale consisting of construct not present (0); some elements of construct present (1); and construct present (2). To establish inter-rater reliability for measure ratings, Pearson product moment correlations were calculated as r = 0.83, with r >0.75 reported as good for research purposes (Portney & Watkins, 1993).

The results of the measure reviews were collated. A cluster of six measures with the highest ratings was identified as being most congruent with the process and outcomes specific to occupational therapy professional practice. A final participant focus group was held to discuss this cluster of measures and to examine the measures’ clinical utility, reliability, and validity. Following this focus group, therapists explored use of these measures within their clinical specialties. To date, one therapist has obtained training to enable implementation of one measure with clients with brain injuries.

### Findings

Of the 18 measures reviewed, 6 measures received high ratings by reviewers for their “fit” with the values, beliefs, and principles that underpin occupational therapy practice (See Figure 4).

These measures were ADL Profile, Assessment of Motor and Process Skills, Functional Performance Measure, Rivermead ADL Assessment, Edmans ADL Index, and Melville-Nelson Self-Care Assessment (See Table 1). The appendix describes the selected measures, including the theoretical foundation, description, and psychometric properties.

The six measures were chosen as the focus of deliberation. Although some provided a more holistic perspective, none considered the client’s financial and social environment.

The ADL Profile (Dutil, Bottari, Vanier, & Gaudreault, 2005; Dutil, Forget, Vanier, & Gaudreault, 1990) was developed to assess clients with head injuries. Construct reviewers found the ADL Profile met most construct criteria. It was unique in incorporating task initiation as an assessment criterion.

The Assessment of Motor and Process Skills (AMPS) (Fisher, 2001a; 2001b) was developed as an occupational performance assessment of ADL motor and process skills. Construct reviewers reported that the AMPS met most constructs important to occupational therapists. The finding that the AMPS was the only measure that fully met the client-centredness criterion was noteworthy. The underlying premise of the AMPS is the influence of personal meaningfulness of the task on the individual’s performance; the client is asked to identify valued tasks and the manner in which the task is to be completed. Concerns regarding clinical utility were expressed. Our study and others (Donnelly & Carswell, 2002) felt that the rater calibration training costs might be prohibitive for many facilities. While the AMPS received high ratings for its fit with occupational therapy practice, its acceptance by other professionals within multidisciplinary teams was questioned.

The Functional Performance Measure (FPM) (Carswell, Carson, Walop, & Zgola, 1992; Carswell, Dulberg, Carson, & Zgola, 1995) met most of the identified criteria but was not reported as client centred. Given that its purpose is to assess
ADL function for a client population diagnosed with Alzheimer’s disease, this finding is not anomalous.

The Rivermead ADL Assessment (Lincoln & Edmans, 1990; Whiting & Lincoln, 1980) was developed for use with brain injury and cerebral vascular accidents (CVAs). The Rivermead ADL Assessment had a standardized procedure requiring task completion in a specified manner. When the task process is rigidly specified, modifications to the task or the environment that result in successful task completion may not be acknowledged. The measure was evaluated as clinically useful because of its ease of use, its scoring method, and the inclusion of a comment section for qualitative observations. Limitations included lack of client-centredness and failure to examine the dynamic interaction between the client, the task, and the environment.

Edmans ADL Index (Edmans & Webster, 1997) was developed to assess ADL performance of clients with a CVA for their potential to live independently at home. Although Edmans ADL Index has a standardized specified procedure for task completion, a comment section enabled individual
## Table 1
Fit of measures with constructs representing occupational therapy practice principles

<table>
<thead>
<tr>
<th>ADL measure</th>
<th>Holism</th>
<th>Client-centred practice</th>
<th>Dynamic interaction</th>
<th>Uniqueness of individual</th>
<th>Uniqueness of performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>The ADL Profile</td>
<td>Did not meet criteria</td>
<td>Score enables item relevancy for client.</td>
<td>Acknowledges dynamic interaction between the client, task, and physical environment. Does not consider the financial or social environment.</td>
<td>Enables assessment of physical, affective and cognitive performance components.</td>
<td>Client determination of task process unless client safety is a factor.</td>
</tr>
<tr>
<td>Assessment of Motor and Process Skills</td>
<td>Did not meet criteria</td>
<td>Met all criteria for client-centredness.</td>
<td>Acknowledges dynamic interaction between the client, task, and physical environment. Does not consider the financial or social environment.</td>
<td>Enables assessment of physical, affective, and cognitive performance components.</td>
<td>Client determination of task process unless client safety is a factor.</td>
</tr>
<tr>
<td>Functional Performance Measure</td>
<td>Did not meet criteria</td>
<td>Not applicable.</td>
<td>Assessment of the dynamic interaction between the person, the task, and the physical environment is embedded within the measure's standardized procedure.</td>
<td>Incorporates assessment of the client's performance components into the item content and/or the standardized procedure of the measure.</td>
<td>Incorporates assessment of the uniqueness of the performance, into the item content and/or the standardized procedure of the measure.</td>
</tr>
<tr>
<td>Rivermead ADL</td>
<td>Did not meet criteria</td>
<td>Did not meet criteria.</td>
<td>Some aspects of the dynamic interaction between the person, the task, and the physical environment are embedded; e.g., use of aids</td>
<td>Enables observation of performance components.</td>
<td>Standardized procedure enables client to have some determination of task completion process.</td>
</tr>
<tr>
<td>Edmans ADL Index</td>
<td>Did not meet criteria</td>
<td>Did not meet criteria.</td>
<td>Some aspects of the interaction between the person, the task, and the physical environment are embedded; e.g., use of aids.</td>
<td>Comment section enables consideration of performance components.</td>
<td>Standardized procedure limits modifications to task completion process.</td>
</tr>
<tr>
<td>Melville-Nelson Self-Care Assessment</td>
<td>Did not meet criteria</td>
<td>Did not meet criteria.</td>
<td>Standardized procedure allows inference of some aspects client/task/environment interaction. Considers environmental supports based on the assistance required for task completion.</td>
<td>Therapists are able to observe underlying performance components.</td>
<td>Standardized procedure limits modifications to task completion process.</td>
</tr>
</tbody>
</table>

recording of client attributes and the uniqueness of the client’s performance. The measure did not address the interaction of client, task, and environment.

The Melville-Nelson Self-Care Assessment (SCA) (Nelson et al., 2002) is based on the Conceptual Framework for Therapeutic Occupation (Nelson, 1996) and meets regulatory requirements for skilled nursing facilities and sub-acute rehabilitation. As with other measures reviewed, the SCA had the potential to be client-centred because of the scoring procedure. The measure differs from many other measures in that it identifies environmental supports based on the degree of assistance the client requires for task completion.

### Discussion

Study findings provide information for the practicing occupational therapist faced with clinical decisions regarding use of specific measures. This research also shows the need for occupational therapists to be aware of a measure’s foundational constructs and congruency with the focus of their professional practice. The action research process made it possible to identify constructs and subsequently to discuss their importance within the context of client assessment. Although the five identified constructs are tacitly accepted as established professional principles, discussion reinforced the need for practicing occupational therapists to consider them when reflecting on a measure’s use and practice foci.

### Overview: Measures and construct congruence

In reviewing implicit and inherent attributes of the measures, it was evident that several issues established a measure’s congruency with occupational therapy practice. These issues pertained to the measure’s construction and conceptual basis. ADL measures are often developed from differing conceptual
bases and include differing content items (Law, 1993; Unsworth, 1993). The ADL Profile and the AMPS, for example, were developed from recognized models of occupational performance whereas the theoretical base of others (e.g., the Barthel Index, the Klein-Bell Activities of Daily Living Scale) was not as well defined reflecting client progress as a checklist of ADL performance tasks. Item content, derived from the conceptual base or purpose of the measure, frequently accounted for the presence or absence of important occupational therapy constructs. Moreover, differing standardization procedures and modes of measurement determined a measure's fit with occupational therapy practice.

Holism

Although occupational therapists place immense importance on the construct of holism (Christiansen, 1991a), no measure was reported as being all inclusive. None of the measures fully captured the essence and importance that occupational therapists place on the integration of clients' roles, culture, resources, spiritual beliefs, and values.

Client-centredness

The AMPS was the only truly client-centred measure allowing clients to choose the tasks they value and the process of task completion. Others enabled therapists to recognize client values and goals within the scoring system. For example, Edmans ADL Index and the ADL Profile instruct therapists to mark items as not applicable if the client did not historically perform or plan to complete a task. A scoring system that gives both therapist and client discretion in choosing items gives a more accurate picture of a client's functioning within his or her environment. Personal meaningfulness of occupations is a crucial concept in client-centredness that needs further consideration in the revision and development of performance-assessment tools.

Dynamic interaction

Measures such as the ADL Profile, the AMPS, and the Functional Performance Measure recognize the interaction between the client, the environment, and the task. Others (e.g., Edmans ADL Index) do not explicitly address this interaction, but the scoring system allows therapists to make inferences as the client's score is dependent upon the degree to which the client requires physical assistance or assistance in organizing the environment for task completion. Letts et al. (1994) stressed the need to both observe what the client brings to the task during the assessment and consider how the task or the environment may be modified to enable successful task completion. Law (2002a) challenged therapists to consider how the environment, including the social and institutional environment, contributes to an individual's ability to participate in self-chosen occupations. Many reviewed measures developed by occupational therapists place emphasis on the dynamic person-task-environment triad that is so essential to achieving occupational performance competence.

None of the reviewed measures considered the client's financial status or social supports that might assist with ADL. This finding concurred with Pollock et al. (1990), who reported that few measures took the social environment into account. Law (1993) states:

The goal in occupational therapy programs to improve functional performance in ADL and IADL is more than simply self-independence. Rather, the goal can be self-reliance and the ability to perform or direct the performance of those activities that the client needs to do (p. 235).

Clients may not be physically independent in ADL task completion but may choose to be autonomous by accessing the assistance of a family member, employed support personnel, or technical assistance. Recognition and sensitivity to the situational and life circumstances of people is crucial to appreciating opportunities and restrictions (Watson & Fourie, 1994).

It is important to observe and understand a client's function in context (Baum & Law, 1997). The lack of complete contextual grounding that comes from assessing all environmental supports means that some ADL measures may give an erroneous overall picture and direct attention to tasks that have little relevance to clients' personal circumstances. The person's physical and social environment, his or her abilities (to feel, think, and do), and the task demands of participation are important factors in dynamic interaction. Measures scoring highest enabled occupational therapists to approach the assessment with this dynamic interaction in mind.

Uniqueness of the individual

All higher ranking measures discussed enabled therapists to record the uniqueness of the client (e.g., attributes such as motor performance, ability to plan and organize the steps of a task, motivation, self-awareness, etc.).

Uniqueness of performance

There is dissonance between the need for measure reliability, which is strengthened by standardized task performance, and the need for ecological validity, which recognizes task modification that occurs in real life situations. The less restrictive measures were regarded as more suitable to occupational therapy practice because they allow therapists to evaluate uniqueness of performance within the dynamic person-environment-occupation interaction. None of the six measures devalued the independence of function using a technical aid. The assessment of function and subsequent development of clients' self-sufficiency should recognize the use of all available supports.

Law (1993) expressed concern that measures may not reflect differences in cultural or gender-based norms. We
noted that item content had the potential to reflect cultural and gender-based differences, capture differing approaches to task completion, and incorporate personal choices. For example, a client may use chopsticks rather than a knife and fork or take a sponge bath instead of bathing in a bathtub. Differences in item construction allowed or prohibited therapists’ considering the uniqueness of an individual’s performance. Wording of items should not record gender, cultural, or personal choice differences as inability.

Measures such as the FIM (Uniform Data System for Medical Rehabilitation, 1993) and the Modified Barthel Index (Shah, Vanclay, & Cooper, 1989) examined intervention efficacy for managing rehabilitation programs for clients with a variety of physical dysfunctions, such as CVAs, traumatic brain injury, spinal cord injury, or frail elderly (e.g., Bode, Heinemann, Semik, & Mallinson, 2004; Jette, Warren, & Wirtalla, 2005; Johnston & Wood, 2000; Slade, Tennant, & Chamberlain, 2002). Outcomes addressed therapy intensity, therapy focus, and length of stay. Discipline-specific researchers have found it necessary to supplement these standardized measures with additional information: an audit of client selected goals (Welch & Forster, 2003); discipline-specific instruments (Baldelli, Boiardi, Ferrari, Bianchi, & Huncsott Bianchi, 2004; Heinemann & Hamilton, 2000); and qualitative research methodology (Unsworth & Cunningham, 2002). Program management outcomes may not demonstrate that client function improvement is attributable to occupational therapy input but rather to the participation of the multidisciplinary team (Unsworth & Cunningham). Furthermore, program management measures tend to identify a standardized level of function that is important in determining the level of care required whereas occupational therapists seek measures that show client functioning within the context of the client’s physical and social environment. Occupational therapists’ use of assessment and outcome measures that are congruent with their profession-specific values, beliefs, and principles show the profession’s unique contribution.

The research findings presented support the dissatisfaction that some occupational therapists expressed with existing outcome measures. Many measures are used because health care systems demand accountability and evidence-based practice but do not allow for consideration of values inherent to the occupational therapy profession (Price, 2005). To lessen this discord between health care system needs and professional responsibility, consideration should be given to the updating of existing measures to incorporate some of the features described or to the development of a profession-specific addendum to more general measures.

Study limitations

The therapists critiquing measures were employed in the same hospital. Issues that these therapists identified may be specific to their regional health care system or to a tertiary rehabilitation setting and may not be generalizable to other locations. However, support from the literature suggests otherwise.

Participants in this study used the CMOP as the practice model from which they identified constructs congruent with occupational therapy principles. The use of other models may have produced different results.

Inter-rater reliability of the measure rating scores was acceptable, but some inconsistency between items scores was observed. The use of multiple raters in the rating process was a limitation that may have affected scoring consistency. Given this limitation, we have chosen to focus on outcomes for a cluster of measures rather than discussing rankings of specific measures.

Conclusion

Occupational therapists provide a unique perspective within the delivery of health care but continue to face the challenge of demonstrating their intervention efficacy and their unique professional contribution in complementing the work of other rehabilitation practitioners. Only when therapists use outcome measures that recognize occupational therapy assessment and intervention goals will the profession have evidence of its essential contribution in the provision of quality rehabilitation services that truly meet each client’s needs.

Key messages

- To best support their unique contribution to health care, occupational therapists need measures that are not only psychometrically sound but that are congruent with the values, beliefs, principles, and intent of occupational therapy practice.
- Six measures that were found to be most consistent with occupational therapy practice principles are identified and discussed.

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### Appendix

**Description of top rated measures**

<table>
<thead>
<tr>
<th>Measure name and authors</th>
<th>Theoretical model(s) employed</th>
<th>Description/Population</th>
<th>Psychometric properties</th>
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<tbody>
<tr>
<td>ADL Profile (Dutil, Bottari, Vanier, &amp; Gaudreault, 2005; Dutil, Forget, Vanier, &amp; Gaudreault, 1990)</td>
<td>Reed's conceptual model of occupational performance (Reed, 1984); underlying performance components based on Luria's model of functional organization of the brain (Luria, 1973)</td>
<td>ADL assessment for clients with head injuries. A 3-point ordinal scoring system used with options for scoring items as &quot;not appropriate.&quot; Although it contains instrumental activities of daily-living skills used in home and community environments, the personal care dimension is specific to personal ADL. The measure follows a hierarchy that includes the dimension assessed (e.g., personal care), the activity within a dimension (e.g., dressing), and the task (e.g., donning outside clothing). Tasks are then analyzed for underlying components.</td>
<td>At the time of the review a study published in French, reported inter-rater reliability as fair or substantial (Rousseau, Dutil, &amp; Lambert, 1994); no validity studies were published.</td>
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<tr>
<td>Assessment of Motor and Process Skills (AMPS) (Fisher, 2001a; 2001b)</td>
<td>Model of human occupation (Kielhofner, 1995); consistent with the World Health Organization model of body function and structure, activities, and participation (WHO, 1999).</td>
<td>Occupational performance assessment used to assess motor and process skills. These skills are defined as the actions used when the client sequences the ADL task action, including selection and use of appropriate tools, or adapts performance when encountering problems. Includes performance components as part of the procedure of the measure. Scoring follows a 4-point ordinal rating scale that rates occupational performance as competent, questionable, ineffective, or markedly deficient. Rasch analysis and computer-based scoring used to allow item difficulty and rater severity in scoring to be factored into the outcome score. Extensive studies support the psychometric properties of the AMPS (e.g., Doble, Fisk, Lewis, &amp; Rockwood, 1999; Fisher, Liu, Velozo, &amp; Pan, 1992; Josephsson, Backman, Borell, Nygard, &amp; Bernspang, 1995).</td>
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<tr>
<td>Functional Performance Measure (FPM) (Carswell, Carson, Walop, &amp; Zgola, 1992)</td>
<td>Theoretical model of functional performance developed by authors provided framework for the development of the FPM.</td>
<td>ADL function assessment in clients with Alzheimer's disease. Enables therapists to address sub-component skills fundamental to function and the environmental factors that impact performance. Scored with visual analogue that ranges from fully agree to fully disagree. Basic reliability and validity studies reported (Carswell, Dulberg, Carson, &amp; Zgola, 1995).</td>
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<tr>
<td>Rivermead ADL Assessment (Whiting &amp; Lincoln, 1980)</td>
<td>None identified.</td>
<td>ADL assessment for clients with hemiplegia. Authors describe its use with clients diagnosed with brain injury and cerebral vascular accidents (CVAs). Items included were compiled by therapists for content validity and ordered hierarchically through Guttman scaling (Whiting &amp; Lincoln, 1980). Item scaling validated; reliability acceptable (Lincoln &amp; Edmans, 1990; Whiting &amp; Lincoln, 1980).</td>
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<tr>
<td>Edmans ADL Index (Edmans &amp; Webster, 1997)</td>
<td>None identified.</td>
<td>ADL performance of clients who have had a CVA for their potential to live independently at home. Basic reliability and validity acceptable (Edmans &amp; Webster, 1997).</td>
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<tr>
<td>Melville-Nelson Self-Care Assessment (SCA) (Nelson et al., 2002)</td>
<td>Occupational therapy model of practice is consistent with the conceptual framework for therapeutic occupation developed by Nelson (1996) and designed to meet requirements for evidence-based practice, and the regulatory and administrative practice conditions for sub-acute rehabilitation within the United States. Uses objective criteria based on identified socio-cultural methods of doing tasks to differentiate the client's ability to perform occupations (e.g., bed mobility, transfers, dressing, eating, toileting, personal hygiene, bathing). A support score rates clients for the degree of assistance they require from another individual. Inter-rater reliability, concurrent and predictive validity, and test responsiveness is acceptable (Nelson et al., 2002).</td>
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