Program Planning: The Clinical Utility of Three Activities of Daily Living Assessment Tools

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Key Words: activities of daily living assessment • cerebrovascular accident

A jury of five occupational therapy experts was used to evaluate the clinical utility of three activities of daily living assessment tools that were originally designed for purposes other than individualized occupational therapy assessment or program planning. The three tools were the Index of Independence in Activities of Daily Living, PULSES Profile, and Physical Self-Maintenance Scale. Using the results from each tool, scored for a simulated patient with a right cerebrovascular accident, as well as medical information about the patient, the jury members were asked to plan a treatment program. The consensus of the jury was that the results from each tool did not provide enough information to help them identify the patient's specific performance problems or the causes of those problems. Therefore, the three tools were considered to have low clinical utility for planning individualized occupational therapy treatment. For use in planning an individualized treatment program, an activities of daily living assessment tool should provide specific information about which component of a task the patient found difficult or was unable to do and the type and level of assistance required.

Literature Review

Clinical Reasoning During Assessment

Occupational therapists use clinical reasoning to assess patients and plan individual treatment programs (American Occupational Therapy Association [AOTA] Commission on Practice, 1983; Rogers & Holm, 1991). The reasoning of occupational therapists during the assessment of patients with physical disabilities was first described by Rogers and Masagatani (1982). Their study revealed that the patient's medical diagnosis played an essential role in the therapists' cognitive operations. First, the therapists used the medical diagnosis to prompt recall of standard assessments associated with the diagnosed pathology. Second, therapists saw the diagnosed pathology as a causative agent for functional problems, rather than seeing the functional problems as caused by impairments resulting from the pathology. When the standard assessments associated with a diagnosis were called to mind during the process of clinical reasoning, only small adjustments were made to the evaluation plan for any specific patient. The therapists seemed to stay with the original assessment plans even when major adjustments to the plan were indicated. Clinical reasoning, which uses "the medical diagnosis to indicate standard problems to be treated, assessments to be done, or objectives to be reached[,] may reflect a standard operating procedure or 'recipe' mode of thinking" (Rogers & Masagatani, 1982, p. 214). They suggested that a more scientific approach to clinical
reasoning, in which data are collected and examined in a methodical way that is tailored to an individual patient’s needs, was a better alternative to the standard operating procedure.

Rogers and Holm (1991) described a scientific model of clinical reasoning that required a therapist’s decisions to be deliberate and focused on individual patient needs, rather than routine and based primarily on the medical diagnosis. The model consisted of two stages, a problem sensing and definition stage and a problem resolution stage (Holm & Rogers, 1989; Rogers & Holm, 1989, 1991). Problem sensing involved choosing a frame of reference and conducting a functional assessment, whereas problem resolution encompassed intervention and discharge (Holm & Rogers, 1989; Rogers & Holm, 1989, 1991). The occupational therapy diagnosis was described as the interface between the problem sensing and the problem resolution stages. It used information from the assessment and therefore served as the basis for intervention (Rogers & Holm, 1989). Four steps were identified for formulating an occupational therapy diagnosis. The first step is cue acquisition. During this step, the therapist selects a frame of reference that guides the collection of cues (i.e., discrete performance indicators) as well as the total assessment process (Line, 1969; Rogers & Holm, 1989). The next step is the formulation of hypotheses about the cause of the problem. The cues gathered during assessment are then interpreted and are used to evaluate and select the hypothesis that is best supported by the cues (Barrows & Feltonich, 1987; Elstein & Bordage, 1979; Koeester, 1954; McGuire, 1985; Rogers & Holm, 1989) and the occupational therapy diagnosis is formed. The collection and interpretation of data or cues is essential to the Rogers and Holm model of clinical reasoning and earlier models of reasoning in occupational therapy, such as that described by Line (1969).

Occupational therapists collect and interpret cues during functional assessments to determine a patient’s abilities and limitations in the performance components (i.e., sensory, motor, cognitive, psychological, and social function) and hypothesize about how any impairments may affect the patient’s functional outcomes in the areas of task performance (i.e., work, self-care, and leisure) (Dunn & McGourty, 1989). By gathering this specific information, the therapist is able to formulate a treatment or prevention plan (Rogers, 1983).

Activities of Daily Living Assessment Tools

The ability to perform self-care activities of daily living (ADL) independently and safely is essential for living and working independently. ADL assessment tools with a set of performance criteria constitute one method of evaluating ADL performance. The therapist must be aware of how the data are collected when using these tools for assessment and treatment planning. Interviewing the patient, caregiver, or nurse is one way to collect such data. However, Rubenstein, Scharrer, Wieland, and Kane (1984) reported that patients tended to overrate their functional abilities, whereas family members and caregivers tended to underestimate the patient’s functional abilities. Having the patient perform various ADLs in a controlled situation is another way of assessing function. Using this method, the therapist is able to identify where, in the activity, the breakdown of the patient’s function occurs.

Law (1987) compiled scientific criteria to evaluate ADL measurement tools. She suggested that the clinical utility of the instrument should be considered first when a therapist chooses an assessment tool. The therapist should decide whether the results yielded by the instrument provide information that can be used in the clinical management of the patient; if not, the therapist should select a different instrument (Law, 1987). Law and Letts (1989) used the criteria developed by Law (1987) to review a number of ADL assessment instruments that collect data through either caregiver report or observation of patient performance. According to Law and Letts, for an instrument to have good clinical utility, the instructions should be clear and concise, scoring should be straightforward and quick but "with results that can be applied to program planning or the evaluation of clients" [italics added] (1989, p. 8). However, Law and Letts did not describe how the results from these tools could be applied to program planning for specific patients. Our study used a jury of experts to evaluate three ADL assessment tools described by Law and Letts (1989), for their usefulness to guide the clinical reasoning involved in occupational therapy program planning.

Method

In this descriptive study, three ADL assessment tools were reviewed, compared, and contrasted by a panel of experts for their utility to guide and plan occupational therapy treatment. Each ADL assessment tool was scored by the researcher with textbook impairments to describe an elderly female with a right cerebrovascular accident (CVA) (see Figure 1). The jury was asked to reach a consensus and render an opinion about the clinical utility of each tool.

Subjects

A convenience sample of jury members was used in this study. The jury consisted of five therapists from four different facilities. They had an average of 8.4 years of experience working in occupational therapy and an average of 8 years of experience working with patients who had sustained a CVA. An average of 49% of their caseload consisted of patients with CVA, with a range of 35% to 80%.
Table 1

<table>
<thead>
<tr>
<th>Questions</th>
<th>Index of ADL</th>
<th>PULSES</th>
<th>PSMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the specific task performance problem?</td>
<td>Unable to determine. General information about limb ability to perform self-care tasks. Do not know what specific component of task patient cannot do.</td>
<td>Unable to determine. Tool identifies that there is a problem in ADL performance only; not what the problem is.</td>
<td>Unable to determine. Identifies general ADL task areas where there is a problem. Is more descriptive about level of assistance needed.</td>
</tr>
<tr>
<td>If you were unable to identify a specific problem, what additional information do you need?</td>
<td>Types and level of assists, what component of the task patient found difficult or unable to perform.</td>
<td>More specific. Types and level of assists, what component of the task patient found difficult or unable to perform.</td>
<td>Type of assists and what component of the task patient found difficult or unable to perform.</td>
</tr>
<tr>
<td>How would you gather that information?</td>
<td>Interview patient, nurses, physical therapist, and family. Observe the patient performing the tasks.</td>
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</tr>
<tr>
<td>How would you document it?</td>
<td>Qualitative statement about type of assistance needed. Narrative about what part of the task was impaired.</td>
<td>Specifics as to types of assistance needed. Chart note or on an occupational therapy form document what part of the task the patient could not do.</td>
<td>Qualitative statements about what element of the task the patient was unable to do and what was limiting function.</td>
</tr>
<tr>
<td>What is the cause of the problem?</td>
<td>Unable to determine.</td>
<td>Unable to determine.</td>
<td>Unable to determine.</td>
</tr>
<tr>
<td>If you were unable to identify a cause of the task performance problem, what additional information did you need?</td>
<td>Cognitive status, family support, vision endurance, range of motion, pain, balance, precautions, muscle strength, communication.</td>
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</tr>
<tr>
<td>How would you document it?</td>
<td>Label the specifics of what is limiting function. Document the situation in which testing occurs. Standard forms for range of motion, muscle testing, etc.</td>
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Note: ADL = activities of daily living. PSMS = Physical Self-Maintenance Scale.

Figure 1. Medical information for 63-year-old woman with 1 week length of stay at rehabilitation hospital.

Instrumentation

The Index of Independence in Activities of Daily Living (InADL) (Katz, Downs, Cash, & Grotz, 1970), PULSES Profile (Adapted) (PULSES) (Granger, Albrecht, & Hamilton, 1979), and the Physical Self-Maintenance Scale (PSMS) (Lawton & Brody, 1969) were selected to be used in this study from among the tests reviewed by Law and Letts (1989) because they assess similar ADLs, and have clear instructions for administration and scoring. Reliability and validity for each of the instruments has been reported previously (Law & Letts, 1989).

Procedure

Before the jury of experts was convened, each ADL instrument was scored by the researcher for an elderly female patient with a right CVA (see Appendix). The diagnosis of CVA was chosen because it is the most common diagnosis among patients seen by occupational therapists in clinics and home care practice (Trombly, 1989, p. 454). Before the meeting, guiding questions were formulated to facilitate jury members' discussion of their clinical reasoning during treatment planning, with the data from these three instruments (see Tables 1 and 2).

The jury members were presented with the scenario that the therapist who completed the ADL assessment was ill; they had to fill in for the therapist by planning the treatment program according to results of the ADL tools.
and the data from the medical information sheet included in Figure 1. The results of each ADL instrument and a guide for discussion were presented to the jury members one at a time, in the following order: InADL, PULSES, and PSMS. The jury members reviewed the results of each tool independently to formulate their thoughts about the tool. Then an occupational therapist with expertise in group facilitation and clinical reasoning guided the discussion about the process of clinical reasoning and program planning with the guide. The jury members were asked to discuss and reach a consensus about the questions posed by the facilitator, for each of the tools (see Tables 1 and 2). Finally, the jury members were asked, for each tool, whether they agreed with Law and Letts’ statement that the “results can be applied to program planning or the evaluation of clients” (p. 8). The total session was recorded on audiotape and then transcribed.

Data analysis began with a general reading of the transcript. Next, the consensus of the jury to each of the questions posed in the clinical reasoning guide was recorded. The transcripts were reviewed again to identify key statements that best exemplified the consensus of the jury members. Then the jury’s consensus opinion of the overall clinical utility of each ADL assessment tools was described.

Results

The jury’s consensus regarding the clinical utility for all three tools is described first, followed by their thinking about each tool. The questions provided to the jury members to elicit their clinical reasoning serve as an organizer of the results (see Tables 1 and 2).

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>What would be your first priority in treating this patient?</td>
<td>Unable to determine</td>
<td>Unable to determine</td>
<td>Unable to determine</td>
</tr>
<tr>
<td>How would you implement treatment?</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>What would be a long-term goal?</td>
<td>Insufficient information</td>
<td>Insufficient information</td>
<td>Insufficient information</td>
</tr>
<tr>
<td>How did you come to your conclusion?</td>
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*Question was not pursued because a treatment priority could not be identified.

Table 2

Program Planning

What would be your first priority in treating this patient? Jury members also stated that they could not identify a treatment priority from the information provided (see Table 2). Because they could not identify a treatment priority, the jury members also could not state how they would implement treatment or identify a long-term goal.

Law and Letts (1989) reviewed a number of ADL assessment instruments for use by occupational therapists; one aspect of the instruments they evaluated was clinical utility. Law and Letts stated that the Index of ADL, PULSES Profile, and the PSMS had good overall utility, including clinical utility. However, they did not describe how the results of these instruments could be applied to occupational therapy program planning for a specific patient. After analyzing functional status data recorded on these three tools, jury members concluded that a treatment plan could not be formulated from the results alone.

The process of clinical reasoning in occupational therapy is used to identify problems that interfere with the performance of work, self-care, or leisure, and to identify the possible causes of those problems. After the cause of a performance problem has been identified, an
individualized treatment program can be implemented to address the specific problem. Because this information was not identified on these tools, treatment plans could not be formulated.

Index of Independence in Activities of Daily Living

The first instrument analyzed was the InADL (Katz et al., 1970). The jury members were unable to identify the specific task performance problem. They reported that the tool identified only whether or not the patient could perform the tasks or and whether assistance was needed. No specific information about which components of the tasks the patient had problems performing was provided.

You don't know which part of dressing or bathing [she] can't do. [She] just can't do part of it. You don't know if it is fasteners, if it is starting [her] pant over [her] foot. You don't know if it is the whole thing. You just know that [she] needs some help to do part of it.

Although no information regarding how the patient was assisted was provided, therapists agreed that the tool helped them recognize that the patient needed some assistance.

There's no indication of degree of assist, what type of cues, or if it's manual assist or demonstration. You could go from somebody who basically needs occasional verbal cues to initiate the task to somebody who's almost totally physically dependent in almost all of these areas.

To identify the specific task performance problem, the jury expressed the need for information about which components of the tasks were difficult or what the patient was unable to do. The jury also wanted information about the patient's sensory, motor, cognitive, psychological, and social abilities and limitations.

Is the patient able to put on [her] socks independently or not? or is it the left sock but not the right sock, or is it starting the clothing on the affected side, or is it carrying over technique. What position was it tested in, did [she] use any adaptive equipment? Was it motor, cognitive, visual perceptual?

The jury would gather this information by using another performance evaluation, in which the steps of the task could be identified and the specific details about performance could be documented.

More specific tasks—dressing a shirt, sitting at the edge of the bed, brushing hair, able to move supine to sit—and make some qualitative statement about what sort of assist was needed for that particular step. [Was she] able to do it with just verbal cueing, or did [she] need a manual assist, and if [she] did was it minimal, moderate, or maximal?

The next important part of assessment is the identification of the cause of the problem. By identifying the cause of the problem, the therapist knows where to focus the intervention program. The jury was unable to identify the cause of the problem from the information provided by the InADL.

I really was impossible to know what impairment we were dealing with, with the information given on this. You could just as easily have gotten someone who was probably both physically and cognitively able to perform the tasks and was absolutely so depressed from having the stroke that [she] wouldn't do it. You just don't know.

To identify the cause of the problem, the jury members believed that they needed information about cognition, balance, function before stroke, family situation, endurance, range of motion limitations, pain, and medical precautions. They would gather the information using a performance evaluation, basic manual muscle testing, range of motion testing, and visual and cognitive evaluations and document the results. The jury members indicated that they could not plan an individualized treatment program from the information provided on the InADL. Without a clear definition of the patient's functional abilities and the cause of the performance problem, a treatment program could not be formed. The therapists agreed that if they had to write a treatment program for this patient, the program would be based on the standard clinical image of a patient with left hemiplegia. These comments are consistent with the findings of Rogers and Masagatani (1982).

I used my experience to kind of figure out what I thought the problems might be. You just don't know from this [assessment] what your treatment priority would be. You might just as well say give me a generic treatment plan for a left hem. It wouldn't be an individualized treatment program for this patient. [It would be] a standardized protocol.

PULSES Profile (Adapted)

The next tool analyzed for its use in program planning was the PULSES (Granger et al., 1979). The jury members were again asked to identify the specific task performance problem. As with the InADL, they were unable to identify the specific task performance problem. The tool, again, provided general information about independence in self-care.

This one is organized by impairments. But it doesn’t really tell you anything about the impairments. Just that there is one, probably; it’s the same difference as the other tool, it doesn’t tell you what it is [the problem], or why, or if it’s a wheelchair or equipment, or the family or [her] vision, or [her] reasoning, or safety awareness.

The jury members identified a need for the same type of information mentioned in regard to the InADL. All the jury members agreed that to identify the specific task performance problem, they needed more specific information about which component of the task was difficult for the patient to perform. They agreed that the information would be gathered in the same fashion as the information needed for the InADL. The jury decided that the details about how the patient performed the tasks should be documented. They believed the patient's performance should be qualified according to a standard that was sen-
The jury also voiced concerns about the scoring of the Physical Self-Maintenance Scale. The consensus was that the PULSES did not provide information about the possible cause of the problem. It kind of leads me to believe that there’s a visual problem, or maybe she can speak, but is she interpreting? Does she have ability for new learning?

The jury identified the need for more information about upper limb function, cognitive status, communication, patient and family goals, medical status, and physical status, such as range of motion, strength, and coordination. They would gather and document this information in the same manner mentioned previously. The jury consensus on program planning was that an individualized treatment plan could not be formulated from the results of the PULSES.

The first priority for this patient would be to gather more information concerning performance.

You’d need to assess the patient and [her] abilities in all of these areas and what [her] status is before you could generate a treatment plan specific to [her] and [her] goals.

The jury also voiced concerns about the scoring of the PULSES. They did not feel the score the patient received reflected her ability to perform tasks.

You come up with a number, but it doesn’t tell you anything else . . . . How do you treat a 16 and what does a 16 mean? Somebody could have gotten a 16 when they started and made an tremendous amount of improvement and leave a 16. When we look at how vague these descriptions are . . . . [she] could be a whole different person, but still a 16.

Physical Self-Maintenance Scale

The final instrument analyzed was the PSMS (Lawton & Brody, 1969). The consensus was that this tool did not provide any specific information about the specific problems of the task. The tool, however, was more descriptive about level of assistance required for task performance.

Still too many [unknown] variables . . . . like with eating, [was it] assistance at meal times or special preparation or help with cleaning after? Or with toileting, [does she] need to be reminded or [does she] need help cleaning? They are very different situations. Or [does she] . . . . have a rare weekly accident? [These are] all in the same category.

The jury believed that more information should be gathered with a performance evaluation that described what part of the task was impeding independence. The jury also agreed that the cause of the problem could not be identified by the information provided in the PSMS.

What are the impairments? It tells you a little bit more what the problem is . . . . whether it’s toilet, feeding, or dressing, but it still doesn’t give you a clue as to what is limiting [function]. Is it upper extremity function? Is it tone? There’s no clue here.

When asked if a treatment plan could be designed using the assessment results provided by the PSMS, the consensus was no. The jury again identified the first priority of treating this patient would be to gather and document further information, as with the other tools.

Discussion

The jury members in this study could not complete the first stage of clinical reasoning, problem sensing, because the assessment tools did not provide adequate information about the patient. Just knowing the functional status of a patient (i.e., dependent in dressing) is inadequate data for planning a treatment program because the therapist would not know where to begin intervention. The occupational therapist needs to know what aspect of the dressing task the patient is unable to perform. The therapist also needs to identify the cause of the performance problem; what is limiting function? In other words, the therapist needs to identify whether the patient is unable to perform the task physically because of range of motion limitations or weakness, or if it is a cognitive problem such as organizing and sequencing the task. Once the therapist has identified the specific problem and the cause of the problem, an individualized intervention program plan for the patient can be formulated. ADL assessments are not used in isolation to plan treatment programs. It was determined that even with impairment data, a therapist still does not know the specific problem a patient has in performing each task, or the exact cause of the problem. A therapist may use the impairment information to infer the cause of a problem, but the accuracy cannot be assumed.

The jury members expressed that the information needed was best gathered with a performance evaluation made by observing the patient performing different tasks. Observation is an important part of every assessment. However, the information gained through observation needs to be documented in the tool so that the therapist, other therapists, or team members can understand and use the information. Law and Letts (1989) indicated that the InADL was a performance evaluation and required 1 to 2 hr to administer. The format in which the observation information is documented on the InADL, however, is not specific enough to be used by an occupational therapist who did not observe the patient’s performance. The data yielded through observation were reduced to such broad categories that they were no longer meaningful. The documentation on the InADL, as with the other two tools,
was too general. The categories on each of the tools encompassed a wide variety of problems a patient could have when performing a task. The jury members did not know which of the problems the patient exhibited. For example, in one subcategory under toileting on the InADL, a therapist can check “Receives assistance in going to ‘toilet room’ or in cleansing self or in arranging clothes after elimination or in use of night bedpan or commode” (Katz et al., 1970, p. 21). The jury members could not identify whether the patient had a problem with all of these functions, with some, or with just one of them. The categories on the tools were not sensitive enough to reflect the particular problem in task performance. Just as the task problem categories were too broad, so too were the scoring systems. Each tool used an overall score to summarize patient performance. The patient reviewed by the jury was rated an “E, independent in all but bathing, dressing, going to the toilet, and one additional function,” on the InADL, a 16 on the PULSES, and an 18 on the PSMS. These summaries of performance do not provide the occupational therapist with an accurate picture of a patient’s specific self-care abilities and limitations. The jury stated that an ADL performance summary should at least convey how the patient performed the self-care tasks, what tasks the patient needed assistance with, and the type and level of assistance required.

Documentation on need for assistance was another area the jury identified as too vague. With the exception of the PSMS, the tools did not define what level of assistance the patient needed to perform the task. Knowing the level of assistance is information that can be used to document patient improvement. Documenting that a patient improved from needing moderate assistance to minimal assistance, when these categories are clearly defined, can reflect the effectiveness of an occupational therapy intervention. Along with the level of assistance needed, the jury wanted to know what type of assistance the patient needed. This information, too, can be used to document patient improvement, such as when a patient needed total physical support before intervention and only occasional verbal prompts after treatment.

Because the information about ADL function was so general on these three assessment tools, the jury members thought it would promote treatment of a patient based primarily on the medical diagnosis. The jury members reported that they could formulate a treatment plan for the patient if they had to, but it would be based on knowledge about right CVA and left hemiplegia accumulated through clinical experience and it might not be relevant for the patient in question. These findings are consistent with the findings of Rogers and Masagatan (1982). The jury was finally asked to describe the format of an ADL assessment that could be used by occupational therapists to plan a treatment program. First, they identified that the assessment would be divided into task performance categories such as bathing, upper extremity dressing, lower extremity dressing, toileting, and so on. Second, the form would have subcategories that included level of assistance, type of assistance, and the circumstance of the testing situation. Third, the form would provide space for the therapist to make an assessment about what specific component of the task was difficult and what impairment seemed to be limiting function.

Study Limitations

There were a number of limitations to this study. Two of the jury members worked at the same facility and may have had similar philosophies about how to design a treatment program, although their job responsibilities were not similar. The second limitation was that the same patient information was used to score each functional assessment tool. Although the directions to the jury stated otherwise, the jury members could have acquired data about the patient’s abilities and limitations from data provided on the preceding tool. Third, the validity of evaluating these instruments only on the basis of a paper record of the patient is a concern. However, it is common in clinical practice for therapists to treat a patient on the basis of written records and notes of the primary therapist.

Further research is needed on how occupational therapists make clinical decisions and evaluate assessment information in order to plan treatment programs. Another area of further research is the format, content, and scoring of ADL assessment tools used by occupational therapists and whether the tools can be applied successfully to treatment planning. Examination of the clinical utility of functional assessment status tools designed for purposes other than occupational therapy evaluation also needs to be continued.

Conclusion

This study was conducted to determine whether the results from the Index of Independence in Activities of Daily Living, PULSES Profile, and Physical Self-Maintenance Scale could be used to guide and plan an occupational therapy intervention program for a specific patient. A jury of five experts was guided through the process of clinical reasoning to design a treatment program for a specific patient using the results from each tool. The jury was also asked to reach a consensus and render an opinion about the clinical utility of each tool. In contrast to the conclusions of Law and Letts (1989), the consensus of this jury was that the results of the Index of Independence in Activities of Daily Living, PULSES Profile, and Physical Self-Maintenance Scale could not be “applied to program planning or the evaluation of clients” (Law & Letts, p. 8). Although the jury determined positive factors about each of the tools discussed, they concluded that each tool required added specificity to yield a functional assess-
ment tool with excellent clinical utility for occupational therapists.

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References


