

**Assessing Function in the Elderly:
Katz ADL and Lawton IADL**

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Introduction

Functional status can be conceptualized as the ability to perform self-care, self-maintenance and physical activity. There are many different areas of functional status such as social function, cognitive function and occupational function, however for this review I will be looking at two different scales that assess function as a physical disability. Function is usually classified into two types: Instrumental Activities of Daily Living (IADLs) and basic Activities of Daily Living (ADLs). Normal aging changes and health problems are often reflected in declines in the physical abilities of the elderly, which can render them less independent, less safe and can make daily tasks much harder for them. One of the methods to evaluate the physical health status of older adults is through functional assessment which provides data that may indicate decline or improvement in health, allowing the healthcare provider to intervene. Functional assessment in this report is conceptualized as a comprehensive evaluation of the physical abilities required to maintain independence.

Dementia is the progressive decline in cognitive function due to damage or disease in the brain beyond what might be expected from normal aging. It is a global cognitive impairment that interferes with human function (McKhann et al. 1984). Dementia impairs brain function which can be assessed well with specialized tests of cognition. However understanding how cognitive impairments affect persons' observed performance of ADL and IADL tasks is much more difficult. The assessment of persons' ability to perform ADL and IADL tasks, and how that ability to perform competently declines in the elderly with dementia is difficult to assess. It has been suggested that more investigation and evaluation of the current tools used to measure functional status should be reviewed (Rockwood 2007).

When patients come into the Geriatric Clinic in Capital Health, they are asked to fill out a form which is a self-reported assessment of their functional abilities related to their activities of daily life (basic and instrumental). Normally this form is filled out by the caregiver or proxy (if accompanying) for collaborative reasons to attempt to get a more robust picture of their capabilities. Sometimes it can lead to uncovering mild or suspected dementia. It can be an indication that cognitive impairments are affecting abilities to engage in everyday occupations if

people are no longer able to independently perform some IADLs. The reality is that by the time family report a loss of independence, there have been many more subtle changes in performance of ADLs occurring meaning people are less efficient in their performances but still independent. I have focused this report on explaining the usefulness of the results on ADLs and IADLs, how this type of classification system gives information on people who while not dependent, do report some difficulty in performing self-care activities, and it raises questions of how tests may need to change in the future to adapt to our evolving society. Furthermore, investigation into the properties of the Index of Independence Katz Activities of Daily Living and the Lawton Brody Instrumental Activities of Daily Living Scale are outlined and critiqued in hopes of creating a valuable reference for healthcare providers. The Katz Index of Independence in Activities of Daily Living, often referred to as the Katz ADL, and the Lawton Instrumental Activities of Daily Living Scale, known as the Lawton IADL, are assessment instruments for use with older adults and are easy to use.

Both assessments were chosen to critique because according to the literature, many other functional scales have been built from these, implying that they are the backbone of the majority of scales we use today in attempting to assess geriatric functional status. It also seemed worthwhile to take another look at the psychometric properties of these two tests and address the challenges around functional assessment in cognitively impaired elderly and shed light on how it can be improved. Being able to assess function is critical in advancing our knowledge of how people lose the ability to engage in and perform everyday occupations which can lead to better knowledge translation and innovation, which ultimately leads to better care.

Conceptual Framework

The International Classification of Function (World Health Organization) was chosen as the conceptual framework. The ICF developed by the World Health Organization is the starting point for recent developments in measuring functional status.

Based on a theoretical model that draws upon the social model of disability, disability in the ICF is not an “all or nothing” concept. People are classified according to a detailed description of their functioning within various domains. The first of these domains – body structure and function – is the most closely related to the medical model as it refers to the physiological and psychological functions of body systems. Activities pertain to a wide range of deliberate actions

performed by an individual, as opposed to particular body functions or structures. Activities are basic deliberate actions undertaken in order to accomplish a task, such as getting dressed or feeding oneself. Not coming from a clinical background, this framework was assessed personally and then by colleagues who are physicians and occupational therapists working in the Geriatric Medicine Research Unit in Capital Health.

The Index of Independence in Activities of Daily Living

In 1969, a medical doctor Sidney Katz realized the need for improving functional assessment in the aged because he needed a better means of evaluating interventions. He also wanted to gather quantitative information about the natural changes in function in human beings (Katz et al., 1969). His vision was to create a means for measuring function – which I can say it is capable of doing (explained further below) but the way in which it is administered has a huge effect on the results. Katz wanted administrators to use a standard assessment in needs of care for the elderly in various facilities such as hospitals, rehabilitation centers, nursing homes and home care programs. The staff undertook a study for 8 years in patients with prolonged illnesses (fractured hips, cerebral infarction, multiple sclerosis etc.) to gather and assess data which resulted in common ‘activities of daily living’ (Katz, 1963). It led to the development of a graded scale known as the Index of Independence in Activities of Daily Living.

The Katz ADL Index (Katz, 1963) was first developed in an effort to find a way to assess function and how it changed over time in the elderly. It is an ordinal index designed to assess the physical functioning using a dichotomous rating (dependent/independent) of six ADLs in hierarchical order of decreasing difficulty as listed: bathing, dressing, toileting, transferring, continence, and feeding, rated on a scale of independence. One important point to address about the Katz ADL scale is that it created an inventory useful in creating a common language about a patient’s function. This inventory can be easily understood by all caregivers involved when evaluating the elderly according to levels of independence. It has been modified and different approaches to scoring have been used from categorical scoring (yes/no) to a 3-point response scale (independent, some assistance, or dependent) to improve the ability to detect subtle differences. Scoring happens in two stages, the first is translating the 3-point scale into a dichotomous scale using guidelines created by Katz himself. Secondly the dichotomous scale

is out of 6, where 6 is considered dependent in all ADLs and 0 is considered independent in all ADLs. Most Katz ADL assessments combine the two stages by creating a guideline that gives specific descriptions for each task so the assessor can choose either dependent or independent.

The Katz ADL Index ranks adequacy of performance in the six ADLs and can be administered by observation or interview, and in some cases by interviewing the proxy. This can pose a problem if a person refuses to perform the task, because even though they may be able to, they are scored as dependent. In addition, relying on the judgment of the person or even the caregiver can be inaccurate as many people may over or under estimate their abilities for a number of reasons, and many caregivers are not always around the person to give an accurate description of what they are able to do. Also, using a proxy can be misleading if the proxy is not the primary caregiver and may not have the most up to date knowledge of the capabilities of the person being assessed. Therefore, administration methods can affect the results of the test, and direct observation is obviously the most accurate.

Properties of the Katz ADL Scale

Reliability

There were no studies found that directly assessed the reliability of the Katz ADL. However, Katz et al. did assess the inter-rater reliability, reporting that differences between observers scoring decisions occurred once in 20 evaluations. This is due to the fact that the guidelines for assessment are fairly detailed, yet there is always room for argument on how detailed scale guidelines should be. In terms of cultural validity, the Katz ADL index demonstrated good internal consistencies for each ethnic group (Cronbach's alphas: 0.84–0.94) in Dutch, Turkish and Moroccans (Reijneveld, Spijker & Dijkshoorn, 2006). This indicated that the Katz Index of ADL index is valid to assess functional performance of these culturally diverse elderly but it was important to note that Moroccans should be compared with caution. It was determined that more research needed to be done to find out why Moroccans should be compared with caution, but they speculated it could have been from many things, two being that Morocco is a less westernized country and the ADLs may be harder to perform with different toileting facilities and different methods of cooking and the fact that in different cultures, dressing oneself can be more difficult due to the traditional dress code. In an attempt to determine of the Katz scale was

indeed cumulative, Donaldson, Wagner and Gresham (1973) evaluated 100 Swedish patients using the Kenny Self-Care measure, the Barthel Self-Care measure, and the Katz ADL measure and re-evaluated the patients a month later. The results demonstrated that the three scales moved in a parallel fashion for 68 of the patients. In 32 divergent scores, the expected hierarchy of sensitivity prevailed: the Kenny was most sensitive to change, followed by the Barthel Index and then by Katz. Although the Katz was less sensitive, it did prove to be cumulative, meaning the items are in a hierarchical order, and generally follow the same patterns in the loss of functional skills, the most complex functions being lost first, and persons became increasingly more dependent.

Validity

Content validity: Katz presents some theoretical justification for the selection and inclusion of items on the scale. The justification was based on the comparison to the field of childhood growth and development, remarking similarities between the order in which an elder person loses functional abilities (ADLs) being the opposite of the order of how a child gains physical independence (Katz, 1969). Katz also goes on to discuss that the findings indicate the 'final common path' that describe the adequacy of organized neurological and locomotor response for the aged and if the elderly improve on ADLs, their order of recovery tends to follow the order that children follow in development. He deemed it appropriate to realize that the order of loss in function in the elderly is important and goes on to express it as being reasonable to hypothesize that if child gains ADLs in a certain order, that elderly will lose them in the opposite order because they will lose the ability to do the most complex tasks first, down to the easiest task. This supports the idea of Rasch analysis because the items on the scale are organized by the researcher in an order of easy to complex in order to measure the functional status. I could not find a study that directly to the Katz ADL and put it through the Rasch model; however other studies on similar tools have taken the items on the Katz and subjected them to Rasch. It was generally found that bathing was not an acceptable fit, but every other item was and they could be displayed upon a linear continuum, which then can be used to measure the functional status of the person (Doble & Fisher, 1998). The Katz ADL is already short, and removing bathing because it didn't fit the construct puts the scale at 5 items which is a low amount. However I believe it could still provide a measurement because Rasch focuses on the ability of the person in relation to the item's difficulty.

Commentary

The Katz Index of ADL has a floor effect because it is insensitive to variations in low levels of disability. It is well known and accepted as a standardized yet less restrictive tool that can measure function in the elderly. The Katz ADL rose to prominence largely because it was the first scale of this kind published, thereby setting the standard for others. It seems it has gained credibility through critical acclaim rather than reliability and validity studies and it is surprising that there is little evidence published on these properties. It is a very broad scale making it useful on a variety of disabled populations, such as middle aged people with physical disabilities, people with multiple sclerosis and people with arthritis (Katz, 1969). The index is most appropriate for patients who are severely sick since minor disability frequently does not translate into the limitations in basic ADL covered in the scale. It is not suitable for health surveys or in general practice as they are not sensitive to minor deviations from complete well-being and although it is a useful index with a restricted range of patients though the range of disabilities included in the instrument is not comprehensive. The single index with a dichotomous score is limited due to loss of information about variability. I believe that due to its broadness it is a useful tool for original assessments of the elderly to gain a part of the picture of the patient.

Lawton Brody Instrumental Activities of Daily Living Scale

The Lawton Instrumental Activities of Daily Living Scale (IADL) is an instrument developed to assess independent living skills (Lawton & Brody, 1969). These skills are considered more complex than the basic activities of daily living as assessed by the Katz Index of ADLs. The instrument is considered useful for identifying how a person is functioning at the present time as well as detecting improving or decline, explained below.

Instrumental Activities of Daily Living (IADLs) are defined as those activities whose accomplishment is necessary for continued independent residence in the community as they are more sensitive for subtle functional deficiencies than the ADLs. It differentiates among task performances including the amount of help and amount of time needed to accomplish each task. There are eight domains of function assessed with the Lawton IADL scale. Women are scored on all areas of function, interestingly enough; historically men are assessed on five and

exclude food preparation, housekeeping and laundering (Graf, 2006). A full description and list of each item on the scale is available in Appendix B. A summary score ranges from 0 (low function, dependent) to 8 (high function, independent) for women, and 0 through 5 for men.

This poses a problem of systematic gender bias and is most likely why the original Lawton IADL is not used all that much anymore, but does continue to be the backbone of many other instruments. However in trying to assess whether this instrument has the ability to measure function in elders, it was realized that in Rasch analysis, it accounts for missing data and only scores the clients on what they are able to do. The sums and counts are only over the observed data, so if it is not observed in men, a valid measure is attainable explained more below.

The Lawton IADL administration time is 10-15 minutes and is an easy to administer. It provides self-reported information about functional skills necessary to live in the community. It can also be a good assessment in identifying specific problem areas in the elderly which can lead to better patient centered care and a more in depth care plan for the community supports that need to be in place to help the individual remain independent. Because the assessment is self reported, it is not an ideal account of functional task. Ideally it would be administered within the personal occupation space of the individual to get the most accurate data about what the person is still able to do, and what items they are really having trouble with. Since it is self reported, it may lead either to over-estimation or under-estimation of ability by either the patient or the care giver. This can be due to many things, such as the test is sometimes administered after a person has had an injury and then they are asked whether they can perform these IADLs, and in that case the person may not really know and may be answering based on the previous ability. In having a caregiver answer, they may not be there at all times and depending on their relationship with the patient, if it is a close family member, sometimes they can over estimate their abilities because of wishful thinking. In addition, the instrument may not be sensitive to small, incremental changes in function.

Reliability and Validity

The Lawton IADL was originally tested concurrently with the Physical Self-Maintenance Scale (PSMS). Reliability was established with 12 subjects interviewed by one interviewer with the second rater present but not participating in the interview process. Inter-rater reliability was

established at .85 (Graf, 2006). Using only 12 subjects is not a large amount and is subject to criticism, and raises questions surrounding its reliability.

The validity of the Lawton IADL was tested by determining the correlation of the Lawton IADL with four scales that assessed domains of functional status, the Physical Classification (6-point rating of physical health), Mental Status Questionnaire (10-point test of orientation and memory), Behavior and Adjustment rating scales (4-6-point measure of intellectual, person, behavioral and social adjustment), and the PSMS (Graf, 2006). To avoid potential gender bias at the time the instrument was developed, specific items were omitted for men, which I believe is a systematic bias in itself. A total of 180 research subjects participated in the study, they were applicants to the author's study; however, few received all five evaluations. All correlations were significant at the .01 or .05 level, indicating that the instrument had validity and that the degree to which the tool actually assesses what it is intended to assess is valid. I think the tool is in need of further reliability and validity testing because the testing that was done seems to be done on small numbers of people and does not branch out to include different cultural samples, which raises alarm bells because the authors do conclude that it is generally accepted that the functional assessment of the elderly is a complex process requiring evaluation from different vantage points. They noted a lack of resources and preventative services and justified their findings as a way to support and enhance these (Lawton & Brody, 1969).

Discussion

An important finding was that in comparison to the field of childhood growth and development, remarkable similarities were seen which could support the validation of the Katz ADLs as a true assessment of primary biological and psychosocial function (Katz, 1969). Katz also goes on to discuss that the findings indicate the 'final common path' that describe the adequacy of organized neurological and locomotor response for the aged. The Katz scales' prediction that order of loss of function is hierarchical as mentioned above but according to Thomas, Rockwood and colleagues precise mathematical relationships between each component have not been found and the scale has not adapted to include other ADL items (Thomas & Rockwood & McDowell, 1998). Other researchers (Finch, Kane & Philp, 1995) have found that alternative hierarchies work equally well, making it an argument that the assessment of dimensionality should precede the assessment of hierarchy, which has particular importance given the controversy surrounding how to scale ADL and IADL items. This is important in understanding how Rasch analysis tests the instrument for the ability to measure function. The Rasch expert must identify the order of easiest to hardest item on the tools and place them along a linear continuum so that the person can be measured against each item they are capable of doing. When looking at studies that uses different instruments but the same IADLs and ADLs in Rasch analysis like Doble and Fisher did in 1998 with the OARS, it was found they ordered the items in such a way that was consistent with the hierarchical nature of the scales.

In addition, researchers are in non-agreement of whether to combine the scales for many reasons. Some think that combining the ADL and IADL items into one scale will be better at identifying the extent of dysfunction in elderly community populations because of the inclusion of the ability to assess the adaptation to the environment (Spector et al.,1987). Doble and Fisher in 1998 found the ADL and IADL scales could be combined into one scale and still provide a means of measuring function. Others argue that because the ADLs were designed to assess the chronically ill that they only capture disability at the extreme and are thus then not able to discriminate above very low levels of disability – like in community dwelling elderly where ADL disability tends to be low (Kovar and Lawton, 1994).

The language used on both the Katz ADL and Lawton IADL is very broad and very open to many interpretations. Also, when administered, mostly it is administered by asking the person what they are capable of doing and not watching them perform the activities, so a clear and justifiable result is not always attained. There is an issue with the way the tests are scored as well because there is much room for personal interpretation. For instance, the Lawton IADL scale scoring of the telephone is outlined below:

1. Operates telephone on own initiative. Looks up and dials numbers, etc.
2. Dials a few well known numbers.
3. Answers the telephone but does not dial.
4. Does not use telephone at all.

Items 1,2 and 3 are all worth 1 point and only number 4 is worth 0. This raises questions as to why they would not have scored them reflecting the difference between the items' own difficulty. It would then become much more specific and give much more information.

In terms of the two instruments being used in assessments (not measurement) there is an advantage of having them be so broad. It can help form and shape public policy because it creates a larger umbrella for more people to fit under. Not all people become disabled in the same way and this can be used as a method of trying to compare across populations for the formation of policy. For example, it can provide a guideline for policy makers in determining who is sick enough to enter a nursing home because it can assess function IADLs in different people with different functional disabilities.

Factor Analysis and the Katz Index and Lawton Brody

To throw another controversy into the mix, exploratory factor analysis has been done to verify the ADL and IADL psychometric properties and have uncovered a three dimensional structure which has further been replicated in other studies as well. Thomas and Rockwood then used the 1991 Canadian Study of Health and Aging (CHSA, 1994) and examined dimensionality of ADLs and IADLs with exploratory factor analysis attempting to extract latent indicators of functional ability. They found that the assumed hierarchical relation between ADLs and IADLs

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was not met by the CHSA population. Bathing was found to be more difficult than other instrumental activities. They also found three distinct factors which suggest qualitative cut off points in the difficulty of basic and instrumental ADLs. The three factors are in the table below as they designated them.

Basic Self Care	Intermediate Self Care	Complex Self Management
Toileting (ADL)	Bathing (ADL)	Handling Money (IADL)
Dressing (ADL)	Walking (ADL)	Phone Use (IADL)
Eating (ADL)	Housework (IADL)	Self-medicating (IADL)
Transferring (ADL)	Meal Prep (IADL)	
Grooming (ADL)	Shopping (IADL)	
	Walking Outside (IADL)	

Furthermore, in 1997 Daniel Clark reported similar findings however in his opinion “Complex Self Management” was indicative of decline in cognitive functioning. This tends to affirm the research that continually finds cross sectional associations that have been observed between cognitive impairment and functional dependence. The results lead to the conclusion that functional decline, whether measure dynamically or statically, is a multi-system construct, which shows the need for more complex modeling that takes into account multi-domain function and health measures. The findings also indicate that from factor analysis, the construct is not unidimensional, although it was originally accepted this way. Because over the years we are still learning how cognitive impairment may influence physical function decline, I believe that more research should be done to figure out how cognition affects function and how best to assess it. The Katz Index of ADLs and the Lawton IADL are sufficient in generating measures for function in the elderly, but for detecting cognitive impairment and how it affects the decline in function; a combination of instruments would most likely provide better results.

Conclusion

Many assessment tools are available to help the clinician detect and monitor improvement in IADL and ADL in the elderly. The ideal functional assessment tool should incorporate as many of the following characteristics as possible.

Reliability

Reliability is a fundamental attribute of any assessment tool and high reliability is essential for clinical application. Results must be consistent, reproducible, and stable over time. For examination and observational methods, the agreement between raters or observers (inter-rater, inter-observer reliability) should be demonstrated. Both the Lawton IADL and Katz ADL scales demonstrated weak or no reliability studies at all. Both seem to rely on critical acclaim because of their early inventions.

Responsiveness

The tool must be able to detect small but meaningful clinical changes and is one of the most important features of a functional assessment tool. Both the Lawton IADL and the Katz ADL seem to be very broad in detection levels because they are short and both were built with the notion of trying to create a standardized way of assessing and planning interventions. Although their responsiveness may be less than other functional assessment tools, they can be used for assessing more diverse populations which can lead to better policy making in health.

Informative and Relevant

The results must provide information that influences clinical practice and improves patients' health. The data collected must be clinically relevant. If it cannot be used to help direct the approach to management, its application is questionable. Both scales have shown the ability to collect meaningful data, although they have their limitations, each one is a good tool in preliminary assessments and can be used as a baseline in assessing function.

Ease of Use

Tools should be easily administered, scored, and interpreted and should be easy for the patient to understand and complete. Brevity is preferred and simplicity is especially important in the elderly. Both the Lawton IADL and the Katz ADL are brief and easily administered in short time periods.

Patient-Oriented

The tool should assess the patient's perceptions and appraisals as the patient is the main

source of information regarding problems with functionality. The use of standardized assessment tools should not replace the clinician's simple observation and questioning of the patient. Because the Lawton IADL is administered by self reporting, it can be deemed it is less effective than observing the patient due to bias in estimating their skills. The Katz ADL is supposed to be administered by observation which would provide a very good indication of where the person stands in performing ADLs.

From the evidence I have reviewed, I think the Katz ADL and the Lawton IADL both are able to generate valid measures, however I could not find evidence of either one of them specifically applied to the Rasch model. Newer scales like the OARS for example were subjected to Rasch analysis (Doble & Fisher, 1998) and the Katz ADL and Lawton IADL instruments have many of the same items of the OARS which has been proven that it can produce a valid measure of function.

Appendix A

KATZ ACTIVITIES OF DAILY LIVING

ACTIVITIES	INDEPENDENCE (1 point) NO supervision, direction or personal assistance	DEPENDENCE (0 points) WITH supervision, direction, personal assistance or total care
BATHING Point: _____	(1 POINT) Bathes self completely or needs help in bathing only a single part of the body such as the back, genital area, or disabled extremity.	(0 POINT) Needs help in bathing more than one part of the body getting out of the tub or shower. Requires total bathing.
DRESSING Point: _____	(1 POINT) Gets clothes from closets and drawers and puts on clothes and other garments complete with fasteners. May have help tying shoes.	(0 POINTS) Needs help with dressing self or needs to be completely dressed.
TOILETING Point: _____	(1 POINT) Goes to toilet, gets on and off, arranges clothes, cleans genital area without help.	(0 POINTS) Needs help transferring to the toilet, cleaning self or uses bedpan or commode.
TRANSFERRING Point: _____	(1 POINT) Moves in and out of bed or chair unassisted. Mechanical transferring aides are acceptable.	(0 POINTS) Needs help in moving from bed to chair or requires a complete transfer.
CONTINENCE Point: _____	(1 POINT) Exercises complete self control over urination and defecation.	(0 POINTS) Is partially or totally incontinent of bowel or bladder.
FEEDING Point: _____	(1 POINT) Gets food from plate into mouth without help. Preparation of food may be done by another person.	(0 POINTS) Needs partial or total help with feeding or requires parenteral feeding.
TOTAL POINTS= _____	<i>6 = High (patient independent)</i>	<i>0 = Low (patient very dependent)</i>

Appendix B

Instrumental Activities of Daily Living (IADL)

INSTRUCTIONS: Ask the patient to describe her / his functioning in each category; then complement the description with specific questions as needed.

Ability to Telephone

1. Operates telephone on own initiative: looks up and dials number, etc.
2. Answers telephone and dials a few well-known numbers.
3. Answers telephone but does not dial.
4. Does not use telephone at all.

Shopping

1. Takes care of all shopping needs independently.
2. Shops independently for small purchases.
3. Needs to be accompanied on any shopping trip.
4. Completely unable to shop.

Food Preparation

1. Plans, prepares, and serves adequate meals independently.
2. Prepares adequate meals if supplied with ingredients.
3. Heats and serves prepared meals, or prepares meals but does not maintain adequate diet.
4. Needs to have meals prepared and served.

Housekeeping

1. Maintains house alone or with occasional assistance (e.g. heavy work done by domestic help).
2. Performs light daily tasks such as dishwashing and bed making.
3. Performs light daily tasks but cannot maintain acceptable level of cleanliness.
4. Needs help with all home maintenance tasks.
5. Does not participate in any housekeeping tasks.

Laundry

1. Does personal laundry completely
2. Launders small items; rinses socks, stockings, and so on.
3. All laundry must be done by others.

Mode of Transportation

1. Travels independently on public transportation, or drives own car.
2. Arranges own travel via taxi, but does not otherwise use public transportation.
3. Travels on public transportation when assisted or accompanied by another
4. Travel limited to taxi, automobile, or ambulette, with assistance.
5. Does not travel at all.

Responsibility for Own Medication

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1. Is responsible for taking medication in correct dosages at correct time.
2. Takes responsibility if medication is prepared in advance, in separated dosages.
3. Is not capable of dispensing own medication.

Ability to Handle Finances

1. Manages financial matters independently (budgets, writes checks, pays rent and bills, goes to bank); collects and keeps track of income.
2. Manages day-to-day purchases but need help with banking, major purchases, controlled spending, and so on.
3. Incapable of handling money.

Scoring: Circle one number for each domain. Total the numbers circled. The lower the score, the more independent the older adult is. Scores are only good for individual patients. It is useful to see the score comparison over time.

Annotated Bibliography

Katz S, Ford AB, Moskowitz RW, Jackson BA, Jaffe MW (1963). Studies of Illness in the Aged. The Index of ADL: A Standardized Measure of Biological and Psychosocial Function. JAMA 1963 Sep 21;185:914-9.

This article chronicled the steps taken to create the Katz index of ADLs. Katz presents some theoretical justification for the selection and inclusion of items on the scale. The authors applied the index to 270 patients at discharge from a hospital for the chronically ill. Index scores were found to correlate (0.50) with a mobility scale and with a house confinement scale (0.39), evidencing a somewhat low degree of validity to not very well known instruments. The index of ADL was shown to predict the long-term course and social adaptation of patients with a number of conditions, including strokes and hip fractures, and was used to evaluate out-patient treatment for rheumatoid arthritis.

Kovar, MG., Lawton MP. Functional disability: activities and instrumental activities of daily living - Focus on Assessment Techniques. Ann Rev Gerontol Geriatr, 1994

The authors studied a representative cohort of community-dwelling elderly persons to examine the relationship between the loss of specific functional activities and cognitive status at the time of these losses and determine whether a hierarchical scale of functional loss is associated with declining cognitive status. This is the first prospective study using a large representative cohort of elderly persons to demonstrate that progressive cognitive decline is associated with a specific pattern of loss of functional tasks. By providing estimates of the cognitive status of persons at the time at which they developed dependency in specific functional items, a natural hierarchy of functional loss associated with cognitive decline emerged.

Reijneveld S. , Spijker J, Dijkshoorn H., Katz' ADL index assessed functional performance of Turkish, Moroccan, and Dutch elderly . Journal of Clinical Epidemiology , Volume 60 , Issue 4 , Pages 382 - 388

This publication examined the reliability and validity of self-reported limitations encountered in the activities of daily living (ADL) as measure of functional performance, for Turkish, Moroccan, and indigenous Dutch elderly in the Netherlands. Authors obtained data on self-reported ADL measured by Katz' ADL index and on five related health outcomes among a general population sample of 304 Dutch, 330 Turkish, and 299 Moroccan respondents aged 55-74 years, in Amsterdam, the Netherlands. They found the Katz' ADL index demonstrated good internal consistencies for each ethnic group and the Katz' ADL index is valid to assess functional performance of Turkish, Moroccan, and Dutch elderly, but comparisons with Moroccan elderly should be handled with caution. The explanation of these findings and their generalizability to other ethnic groups deserve further study.

Thomas, V., Rockwood, K., McDowell I. Multidimensionality in Instrumental and Basic Activities of Daily Living . Journal of Clinical Epidemiology , Volume 51 , Issue 4 , Pages 315 - 321 V .

The authors combined the ADLs and IADLs and did a factor analysis technique and found clusters, there by challenging the hierarchical order of the Katz Index. Issues of multidimensionality arise and how one area of clustering could possibly be used to detect early cognitive impairments in the elderly.

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