

APPENDIX

ADL AND IADL¹

The ADL taxonomy assesses how an individual performs, without assistance, in six main functioning domains: bathing, dressing, toileting, transferring, continence and feeding. The iADL scale comprises eight tasks: ability to use the telephone, shopping, food preparation, housekeeping, doing laundry, mode of transportation, responsibility for own medications and ability to handle finances. In being performed, the activities included in the iADL list require a more complex of neuropsychological organization than ADL, and therefore measure less severe levels of vulnerability.² Brief definitions for ADL and iADL tasks are given in Table A.1.

In the original paper by Katz et al. (1970), the ADL tasks were to be evaluated on a zero-one scale, i.e., a person could either be having a deficit or not, and no intermediate degrees of dependency could be selected. Yet, many assessment tools for long-term-care programmes in Europe now include an evaluation of ADL using a multivariate scale with several degrees of dependency for each task (e.g. complete dependency, partial dependency, light dependency).

The Lawton iADL taxonomy is binary as-well (Lawton & Brody, 1969), with patients being classifiable as “dependent” or “not dependent” with respect to each task, without intermediate values. The original scale includes a specific definition for “dependency” together with a list of *lighter* levels of dependency, which are anyway included into the “not dependent” category. As an example, consider the housekeeping dimension: there is one

specific definition for “dependency”, which is “not participating in any housekeeping task”, alongside a list of lighter degrees of limitation (e.g. “performing only light daily tasks” or “needing help with all home tasks”) which are anyway included in the “non-dependency” category.

Table A.1 ADL and iADL

<i>ADL: activities of daily living</i>	<i>iADL: instrumental Activities of daily living</i>
<p>Bathing: dependency means “needing help with bathing in more than one part of the body”, “getting in or out of the tub or shower”, or “requiring total bathing”.</p> <p>Dressing: dependency means “needing help with self-dressing” or “needing to be completely dressed”.</p> <p>Use of WC: dependency means “needing help in transferring to the toilet, self-cleaning or using bedpan or commode”.</p> <p>Transferring: dependency means “needing help in moving from bed to chair” or “requiring a complete physical transfer”.</p> <p>Continence: dependency means “being partially or totally incontinent of bowel or bladder”</p> <p>Nutrition: dependency means “needing partial or total help with feeding” or “requiring parenteral feeding”.</p>	<p>Ability to use the telephone: dependency means “not using the telephone at all on own initiative”. Lighter levels are: “dialing only a few well-known numbers” and “answering but not dialing”.</p> <p>Shopping: Dependency means “shopping independently only for small purchases”, “needing to be accompanied on any shopping trip” or “being completely unable to shop”.</p> <p>Food preparation: dependency means “preparing adequate meals only if supplied with ingredients”, “heating and serving prepared meals”, “preparing meals but being unable to maintain adequate diet” or “needing to have meals prepared and served”.</p> <p>Housekeeping: dependency means “not participating in any housekeeping tasks”. Lighter levels include “performing only light daily tasks while being unable to maintain acceptable level of cleanliness” and “needing help with all home maintenance tasks”.</p> <p>Doing laundry: dependency means “being unable to do laundry”. Lighter levels include “laundering only small items and rinsing stocks and stockings”.</p> <p>Mode of transportation: dependency means “travelling only with taxi or automobile, with assistance of another” or “not travelling at all”. Lighter levels include: “travelling independently with taxi-only” and “travelling on public transportation when accompanied by another”.</p> <p>Responsibility for own medications: dependency means “being incapable of dispensing own medication, except maybe for those already prepared in advanced and in separate dosages”.</p> <p>Ability to handle finances: dependency means “being incapable of handling money”. Lighter levels include “being able to manage day-to-day purchases while needing help with banking, major purchases etc”.</p>

ITALIAN REGIONAL ASSESSMENT SCALES (TABLES A.2, A.3,
A.4, A.5, A.6, A.7, A.8, A.9, A.10, AND A.11)

Table A.2 The BINA Scale for the Emilia-Romagna Region

<i>Limitation</i>	<i>Description</i>
Medications needed	10: Not needed 30: For ulcers 60: for catheters 100: For bedsores
Medical care needed	10: No (in good health) 30: Can receive scheduled care in hospital 70: Domiciliary care needed 100: Full-time care needed
Controlling bladder	10: Full control 30: Rare episodes 70: Frequent episodes 100: Fully incontinent
Behavioural issues	10: No 50: Mood issues 80: Cognitive issues 100: Cognitive and behavioural issues (aggressive/ disturbing behaviours)
Communication	10: Understands and talks 40: Difficulties in communication 70: Difficulties in understanding and communication 100: Unable to understand
Sensory impairment (sight and hearing)	10: None 20: Can use visual or hearing aids 80: Incurable impairment 100: Fully deaf and/or blind
Mobility	10: Autonomous 30: Able to move with aids 80: Needs help from others 100: Bedridden
Daily living activities (personal hygiene, dressing, eating)	10: Fully independent 20: Needs occasional help 70: Needs frequent help 100: Fully dependent
Social network	10: Can rely on family 30: Can partially rely on family, or receives informal care from outside the household 60: Informal care only available if summoned by local authorities 100: Can't rely on anyone

(continued)

Table A.2 (continued)

<i>Limitation</i>	<i>Description</i>
Housing quality and environment	10: Good housing quality, services available close by 20: In-house barriers impede access to services nearby 70: Barriers impede access to crucial in-house areas (kitchen, bathroom) 100: Crucial in-house facilities are lacking

Source: Azienda Unità Sanitaria Locale di Bologna, resolution n. 113 (27/06/2006)

Table A.3 Assessment-of-need for Friuli—Venezia Giulia’s CAF and APA

<i>Limitations</i>	<i>Evaluation</i>	<i>Description</i>
Bathing	Yes/no	Needs help with bathing more than one part of the body, getting in or out of the tub or shower
Dressing	Yes/no	Needs help with dressing self or needs to be completely dressed
Use of WC	Yes/no	Needs help transferring to the toilet, cleaning self or uses bedpan or commode
Transferring	Yes/no	Needs help in moving from bed to chair or requires a complete transfer
Continenence	Yes/no	Is partially or totally incontinent of bowel or bladder
Nutrition	Yes/no	Needs partial or total help with feeding or requires parenteral feeding
Cognitive impairment	Yes/no	Is affected by dementia or has substantial sensory deficits (score of 3 on the Clinical Dementia Rating scale)

Source: Regional Law 6/2006

Table A.4 Health assessment for Liguria’s Assegno di Cura

<i>Outcome</i>	<i>Evaluation</i>
Unable to feed	Yes/no
Unable to dress	Yes/no
Unable to bath	Yes/no
Need help in moving inside/ outside dwelling	Yes/no
Cognitive, Behavioural issues	Yes/no

Source: Regional Resolution 219/2008

Table A.5 TRIAGE assessment scale in Lombardia

<i>Outcome</i>	<i>Level 1</i>	<i>Level 2</i>	<i>Level 3</i>	<i>Level 4</i>
1. Morbidity	Absent or mild (0)	Moderate (1)	High (2)	Very high (2)
2. Eating	Autonomous (0)	With supervision (0)	Severe dependency (1)	Enteral or parenteral nutrition (2)
3. Continence	Continent (0)	Urinary incontinence/ faecal continence (0)	Urinary and faecal incontinence (nappies can be used) (1)	Urinary and faecal incontinence (catheters needed) (1)
4. Mobility	Autonomous (0)	Minimal help needed (0)	Limited (1)	Bedridden (2)
5. Personal hygiene	Autonomous (0)	Minimal help needed (0)	Limited (1)	Entirely dependent (2)
6. Mental and behavioural issues	None (0)	Cooperative, with cognitive issues (0)	Uncooperative, with cognitive issues (1)	Uncooperative, with cognitive or behavioural issues (1)
7. Living arrangement	Living with partner/family/assistant (0)	Living alone, not needing assistance (0)	Living alone or with someone, needing assistance/network (1)	Living alone, lacks network/assistance (2)
8. Care received	Adequate (0)	Partially adequate (1)	Inadequate (2)	No assistance is given (2)

Source: Resolution of Direttore Generale della DG Famiglia, Conciliazione, Integrazione e Solidarietà Sociale n. 6032/2012

Table A.6 ADL and iADL reverse scale for Lombardia

<i>Outcome</i>	<i>Evaluation</i>
Bathing	1: does not need help, or needs help in washing one part of the body 0: needs help in washing more than one body part
Dressing	1: does not need help for dressing, or needs help in putting on shoes only 0: needs help in dressing either the entire body or a part
Use of WC	1: uses the toilet without help 0: needs help in using the toilet, or cannot go to the toilet

(continued)

Table A.6 (continued)

<i>Outcome</i>	<i>Evaluation</i>
Transferring	1: gets in and out of bed without help 0: needs help in getting in and out of bed, or is bedridden
Continence	1: incontinent of bowel and bladder 0: has occasional incidents, or cannot control continence of bowel/bladder
Nutrition	1: eats without help, or needs help in cutting up the food 0: needs help for eating, or needs enteral/parenteral nutrition
Ability to use the telephone	1: able to use the phone, even to call only few numbers, even if only able to answer 0: unable to use the telephone
Shopping	1: takes care of all the groceries' purchases 0: only able to shop in small shops, or needs to be accompanied, or is totally unable to make purchases
Mode of transportation	1: goes out alone, uses own car or public transport, or taxi without help, or needs to be accompanied on public transport 0: can only use taxi with help, or cannot go out
Responsibility for self-medications	1: autonomous, can take care of dosages 0: can only manage pre-prepared medications, or is not able to take own medicines
Ability to handle finances	1: independent in dealing with bank operations, or just with everyday payments 0: unable to handle money or finances
Food preparation	1: autonomous in preparing food 0: eats pre-prepared food, or needs to be help with ingredients
Housekeeping	1: independent for doing light works, or needs some help 0: unable to do any task
Doing laundry	1: does all the laundry by herself, or just the underwear 0: laundry is entirely done by others

Source: application form issued by the Municipalities Consortium District n.5 (Ambito territoriale Distretto 5, Municipalities of Cassano d'Adda, Inzago, Liscate, Melzo, Pozzuolo Martesana, Settala, Truccazzano, Vignate), available at <http://www.comune.melzo.mi.it/wp-content/uploads/2017/02/domanda-voucher-ANZIANI.pdf>

Table A.7 The Health components of Piemonte's Cartella Geriatrica assessment scale

<i>Dimensions</i>	<i>Categories</i>		
Functional autonomy (Barthel Functional)	0–14	15–49	50–60
Score for Cartella Geriatrica	0	2	3
Mobility (Barthel Mobility)	0–14	15–29	30–40
Score for Cartella Geriatrica	0	2	3
iADL	10–14	5–9	0–4
Score for Cartella Geriatrica	0	1	2
SPMSQ (mental deterioration): number of mistakes	0–4	5–7	8–10
Score for Cartella Geriatrica	0	1	2
Behavioural issues	None	Mild	Severe
Score for Cartella Geriatrica	0	1	2

Source: Regional Resolution DGR 42-8390/2008

Table A.8 The Piemonte's Barthel scale (Functional and Mobility)

<i>Limitation in</i>	<i>Assessment values</i>
Functional	
Feeding	0/2/5/8/10
Bathing self	0/1/2/4/5
Personal toilet	0/1/2/4/5
Dressing	0/2/5/8/10
Controlling bowels	0/2/5/8/10
Controlling bladder	0/2/5/8/10
Using the toilet	0/2/5/8/10
Mobility	
Moving from chair to bed and return	0/3/8/12/15
Walking on level surface	0/3/8/12/15
Ascend and descend stairs	0/2/5/8/10

Table A.9 iADL reverse scale in Piemonte’s Cartella Geriatrica

<i>Outcome</i>	<i>Level 1</i>	<i>Level 2</i>	<i>Level 3</i>	<i>Level 4</i>
Ability to use the telephone	(3) Autonomous in using the phone	(2) Only able to dial a few well-known numbers	(1) Only able to answer the phone	(0) Unable to use the telephone
Shopping	(3) Autonomous in shopping	(2) Only able to make small purchases	(1) Needs help of any kind of purchase	(0) Unable to go shopping
Mode of transportation	(4) Autonomous; (3) uses taxi but not public transport	(2) Uses public transport if accompanied	(1) Only able to use taxi and only if accompanied	(0) Cannot use any mode of transportation
Responsibility for self-medication	(2) able to assume any medicine	(1) Only able to use pre-prepared doses	–	(0) Unable to assume medicines or follow prescriptions
Ability to handle finances	(2) Able to handle finances	(1) only able to handle daily purchases	–	(0) Unable to handle money or finances

Table A.10 iADL reverse scale for Piemonte’s Cartella Geriatrica

<i>Outcome</i>	<i>Evaluation</i>
Ability to use the telephone	3/2/1/0
Shopping	3/2/1/0
Mode of transportation	4/3/2/1/0
Responsibility for self medications	2/1/0
Ability to handle finances	2/1/0

Table A.11 The Sardegna’s modified Barthel Scale and dataset correspondence

<i>Limitation in</i>	<i>Assessment values</i>
Functional	
Feeding	10/8/5/2/0
Bathing self	5/4/3/1/0
Personal toilet	5/4/3/1/0
Dressing	10/8/5/2/0
Controlling bowels	10/8/5/2/0
Controlling bladder	10/8/5/2/0
Using the toilet	10/8/5/2/0
Mobility	
Moving from chair to bed and return	15/12/8/3/0
Walking on level surface	15/8/5/2/0
Ascend and descend stairs	10/8/5/2/0

Source: Regional Resolution 33/12, 2015

NOTES

1. Further details of ADL and iADL can be found in seminal works by Katz, Downs, Cash, and Grotz (1970) and Lawton and Brody (1969) as well as in Shelkey and Wallace (1998) (for ADL) and Graf (2009) (for iADL).
2. On the hierarchical structure of ADL and iADL see Wiener, Hanley, Clark, and Van Nostrand (1990), Kempen, Myers, and Powell (1995), Thomas, Rockwood, and McDowell (1998), LaPlante (2010). As LaPlante (2010) highlights, the paediatric development model implicit in the ADL scale implies that “as a child matures, the simplest activity, eating, is mastered first, then continence, transferring, toileting, dressing, and bathing, in order of increasing complexity. As a person ages, or experiences certain chronic illnesses, performance is lost in the reverse order, from bathing to eating”.

REFERENCES

- Graf, C. (2009). The Lawton instrumental activities of daily living (IADL) scale. *The Gerontologist*, 9(3), 179–186.
- Katz, S., Downs, T. D., Cash, H. R., & Grotz, R. C. (1970). Progress in development of the index of ADL. *The Gerontologist*, 10(1 Part 1), 20–30. https://doi.org/10.1093/geront/10.1_Part_1.20
- Kempen, G. I. J. M., Myers, A. M., & Powell, L. E. (1995). Hierarchical structure in ADL and IADL: Analytical assumptions and applications for clinicians and researchers. *Journal of Clinical Epidemiology*, 48(11), 1299–1305. [https://doi.org/10.1016/0895-4356\(95\)00043-7](https://doi.org/10.1016/0895-4356(95)00043-7)
- LaPlante, M. P. (2010). The classic measure of disability in activities of daily living is biased by age but an expanded IADL/ADL measure is not. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 65(6), 720–732. <https://doi.org/10.1093/geronb/gbp129>
- Lawton, M. P., & Brody, E. M. (1969). Assessment of older people: Self-maintaining and instrumental activities of daily living. *The Gerontologist*, 9(3), 179–186.
- Shelkey, M., & Wallace, M. (1998). Katz index of independence in activities of daily living (ADL). *The Gerontologist*, 10(1), 20–30.
- Thomas, V. S., Rockwood, K., & McDowell, I. (1998). Multidimensionality in instrumental and basic activities of daily living. *Journal of clinical epidemiology*, 51(4), 315–321.
- Wiener, J. M., Hanley, R. J., Clark, R., & Van Nostrand, J. F. (1990). Measuring the activities of daily living: Comparisons across national surveys. *Journal of Gerontology*, 45(6), S229–S237.

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