

Supplementary

Table S1: Instruments and scales used to assess apathy

Name of Scale/Instrument	Rating Scales/Instruments to assess Apathy Components
Neuro-Psychiatric Inventory-Apathy (NPI-Apathy) [28,30]	<p>Designed for use in patients with dementia (multiple aetiologies)</p> <p>Score is based on responses from an informed caregiver, preferably one living with the patient</p> <p>The person should have spent at least 4 h per day at least 4 days per week with the patient and who is knowledgeable about the patient's daytime and night-time behaviours</p>
	<p>The NPI rates frequency, severity and caregiver distress at symptoms</p>
	<p>Frequency is rated as:</p> <ol style="list-style-type: none"> 1. Rarely—less than once per week 2. Sometimes—about once per week 3. Often—several times per week but less than every day 4. Very often—once or more per day
	<p>Severity is rated as:</p> <ol style="list-style-type: none"> 1. Mild—produces little distress in the patient 2. Moderate—more disturbing to the patient but can be redirected by the caregiver 3. Severe—very disturbing to the patient and difficult to redirect
Apathy Evaluation Scale–self (AES-S), clinicians (AES-C), informant (AES-I) [31,32]	<p>Distress is scored as:</p> <ol style="list-style-type: none"> 0. Not at all 1. Minimally (almost no change in work routine) 2. Mildly (some change in work routine but little time rebudgeting required) 3. Moderately (disrupts work routine, requires time rebudgeting) 4. Severely (disruptive, upsetting to staff and other residents, major time infringement) 5. Very Severely or Extremely (very disruptive, major source of distress for staff and other residents, requires time usually devoted to other residents or activities)
	<p>NPI-Apathy includes 3 screening questions and 8 sub-questions including items such as:</p> <p>Has the patient lost interest in the world around him/her?</p> <p>Has he/she lost interest in doing things or does he/she lack motivation for starting new activities?</p> <p>Is the patient less enthusiastic about his/her usual interests?</p> <p>Does the patient show any other signs that he/she doesn't care about doing new things?</p>
	<p>Designed for use in persons with dementia (multiple aetiologies)</p> <p>The AES-S, AES-C and AES-I all assess the same 18 items, with ratings made from 1 (not at all characteristic) to 4 (very characteristic) on 18 items, for example:</p>

	<p>S/he is interested in having new experiences S/he is interested in learning new things When something good happens, s/he gets excited</p> <p>AES-C: Performed as part of a structured interview between clinician and patient, based on both verbal and non-verbal information with ratings based on the past 4 weeks AES-I: Reported by informant AES-S: Self-reported by patient</p> <p>Scores for the AES range from 18 to 72. In the original validation study (2), the mean (standard deviation) score for 30 healthy older adults were: AES-C: 26 (+/-6); AES-I: 26 (+/-7.5); AES-S: 28 (+/-6)</p>
Apathy Scale [37]	<p>Includes a set of 14 questions, initially validated in patients with Parkinson's Disease:</p> <p>Questions include examples such as Are you concerned about your condition? Do you put much effort into things? Are you always looking for something to do?</p> <p>Scoring For questions 1–8, not at all = 3 points; slightly = 2; some = 1; a lot = 0 For questions 9–14, not at all = 0; slightly = 1; some = 2; a lot = 3</p>
Apathy Inventory [38]	<p>Designed for use in patients with probable AD, Parkinson's disease and MCI Caregiver (AI-C)- and patient (AI-P)-version both assess: Emotional blunting Lack of initiative Lack of interest</p> <p>AI-C: If the response is positive, the frequency and gravity of the item are explored How frequently do these problems arise? How severe are these problems; to what extent do they disturb or handicap the patient?' For each of the three questions, the maximum score (Frequency 1–4, Severity 1–3) is 12, giving a maximum total score of 36 AI-P: The score for each dimension is obtained by using a Likert-style scale (1–12): if the symptom is present, the subject is asked to estimate its intensity (from mild at the left-hand end of the scale, to severe at the right-hand end)</p>
Dementia Apathy Interview and Rating (DAIR) [39]	<p>Designed for use in patients with possible and probable AD Sixteen-item scale that consists of a structured interview with a caregiver – specifically designed for persons with dementia (all types) The caregiver must have seen the individual with dementia at least two times each week for the previous month Include items in the scale minimally related to cognitive ability (e.g., Are there things s/he is enthusiastic about? Does s/he show interest in news about friends and relatives?) Respondents must record for each behaviour whether it is a change from baseline</p>
Dimensional Apathy Scale (DAS) [40,41]	<p>Twenty-four-item multidimensional apathy measure undertaken by carers Composed of three subscales: executive, emotional, and initiation</p>

	<p>Examples of</p> <p>Executive subscale "S/he finds it difficult to keep his/her mind on things"</p> <p>Emotional subscale "S/he is indifferent to what is going on around him/her"</p> <p>Initiation subscale "S/he acts on things s/he has thought about during the day"</p> <p>Created specifically to better profile apathy subtypes in people with neurodegenerative and neurological disease</p> <p>Items are scored on a 4-point Likert scale</p> <p>The items are summed for each subscale, with the total subscale score ranging from 0 (least apathetic) to 24 (most apathetic), with a DAS total score ranging from 0 to 72</p>
Apathy Motivation Index (AMI) [42]	<p>Validated in healthy community dwelling population</p> <p>Self-administered 18-item scale</p> <p>Participants self-rate each item on a five-point Likert scale by deciding how true that statement was based on the past two weeks of their life</p> <p>The scale ranges from 0–4 (with 0 = 'completely untrue', 4 = 'completely true')</p> <p>Each item is reverse-scored so that a higher rating indicates more apathy</p> <p>Composed of six items for each of three subscales</p> <p>Behavioural activation (goal-directed behaviour initiation, e.g., "I get things done when they need to be done, without requiring reminders from others")</p> <p>Social motivation (interest and engagement in social interactions, e.g., "I start conversations without being prompted")</p> <p>Emotional sensitivity (feeling positive and negative emotions, e.g., "I feel sad or upset when I hear bad news")</p>
Lille Apathy Rating Scale (LARS) [43,44]	<p>Scale was initially validated to diagnose apathy in persons with probable Parkinson's disease</p> <p>Comprises 33 queries belonging to 9 domains with overall score ranges from -36 to +36 and each domain corresponding to a clinical manifestation of apathy including the following:</p> <p>Everyday productivity</p> <p>Interests</p> <p>Taking initiative</p> <p>Novelty seeking</p> <p>Motivation- voluntary actions</p> <p>Emotional responses</p> <p>Concern</p> <p>Social Life</p> <p>Self- awareness</p>
APADEM-NH (APathy in DEMentia, Nursing Home) scale [45,46]	<p>Validated in nursing home residents with dementia (unspecified type)</p> <p>Scale undertaken by caregiver known to patient</p> <p>26 items assessed:</p> <p>Deficits of Thinking and Self-Generated behaviours: 13 items</p> <p>Emotional Blunting: 7 items</p> <p>Cognitive Inertia: 6 items</p> <p>Each item is scored from 0 to 3</p> <p>0: No Apathy (spontaneous emotion or action)</p> <p>1: Mild Apathy (action or emotion needs some kind of stimulation)</p> <p>2: Moderate Apathy (action or emotion obtained only with intense stimulation)</p> <p>3: Severe Apathy (not responding to any intervention)</p>

Person- Environment Apathy Rating (PEAR) scale [29]	<p>Designed for use in persons with dementia (unspecified type)</p> <p>Consists of two subscales, PEAR-Environment and PEAR-Apathy</p> <p>Each subscale has six items, and each item is rated on a 1–4 scale; higher ratings indicate a better environment and greater apathy, respectively</p> <p>The total score ranges from 6 to 24 for each subscale</p> <p>PEAR-Environment subscale assesses: stimulation clarity, stimulation strength, stimulation specificity, interaction involvement, physical accessibility, and environmental feedback</p> <p>PEAR-Apathy subscale evaluates: facial expression, eye contact, physical engagement, purposeful activity, verbal tone, and verbal expression that reflect the symptoms of apathy in cognitive, behavioural, and affective domains</p>
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