

Assessment Tool	Behavioral Domains ¹	Who Administers and How	Number of Items	Response Categories	Estimated Time to Administer	Setting and Target Population	Reliability and Validity
Part IV: Specific Behavior Scales- Aggression Scales							
28. Aggressive Behavior Scale (ABS)	Aggression	Uses MDS data	4 items	Based on the past 7 days. Frequency rated 0 = behavior not exhibited to 3 = behavior occurred daily Range 0-12 Higher scores more frequent aggressive behavior	Not specified.	Nursing home residents or hospital patients	$\alpha = 0.79-0.93$ Relationship to CMAI (0.72, $p < .001$)
29. Overt Aggression Scale (OAS) Also available the Modified Overt Aggression Scale (MOAS)	Aggression	Observation	4 items	Rated per incident Severity scale rated 1 = least severe to 4 = most severe Duration and severity recorded along with intervention used	Not specified	In-patient psychiatric hospitals adults and children, has been used in patients with dementia	Correlation coefficient = 0.87
30. Rating Scale for Aggressive Behavior in the Elderly (RAGE)	Aggression	Observation and medical notes	21 items	3 day rating period Frequency rated 0 = never to 3 = more than once every day Items 18-21 are scored separately Range 0-61 Higher scores indicate greater aggressive behavior	<5 minutes	Nursing home residents	$\alpha = .89$ Test-retest ($r = .94$, $p < .00001$) Interrater ($r = .75$, $p < .004$) Convergent Validity: Highly correlated with CMAI ($r = .73$, $p = .005$) and BARS ($r = .84$, $p < .00001$).

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31. Ryden Aggression Scale (RAS) Also available the RAS-2	Physically aggressive behavior Verbal aggression Sexual aggression	Self administered by informant	25 items	Based on past year Frequency Rated 0 = never to 5 = one or more times daily Range 0 -125 Higher scores indicate greater aggressive behavior	20 minutes	Community and hospital patients with dementia	Internal consistency $\alpha=.88$ Test-retest at 8-12 weeks, $r = .86$. Inter-rater reliability $r = .88$ Construct validity: RAS1 to RAS2 $r=.65$, $p<.001$. Content validity: literature and expert review
32. Cornell Scale for Depression in Dementia (CSDD)	Depression	Clinician interview with patient and nursing staff/caregiver	19 items	Based on week prior except for weight loss, loss of interest, and lack of energy which are evaluated in the past month Rated 0 = absent to 2 = severe Range 0-38 Higher scores indicate greater depressive symptomatology	30 minutes (20 minutes with caregiver and 10 minutes with patient)	Dementia patients in various settings	Interrater reliability $k = .67$ Internal consistency $\alpha=.84$ Concurrent validity: significant correlation between score on CSDD and Research Diagnostic Criteria for depression diagnosis ($r=.83$, $p<.001$)

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33. Patient Health Questionnaire -9 (PHQ-9)	Depression	Interview with patient or self-administered	9 items	<p>Based on the past 2 weeks</p> <p>Rated 0 = not at all to 3 = nearly every day</p> <p>Total scores range from 0-27 Higher scores indicated more depressive symptomatology 5 or items scored \geq 2 indicates major depression</p> <p>Maps to DSM-IV</p>	5 minutes	General population in a variety of settings, has been used in patients with dementia	<p>α = .86-.89</p> <p>Criterion validity: trOC analysis found the area under the curve was .95</p> <p>Construct validity: strong correlation with mental health portion of SF-20 (.73).</p>
34. The Dementia Mood Assessment Scale (DMAS)	Depression (1 st 17 items) Severity of dementia (items 18-24)	trained Interviewers with input from nursing staff or caregiver	24 items	<p>Based on past week</p> <p>Items 1-17 rate severity of depression 0 = within normal limits to 6 = most severe</p> <p>Items 18-24 rate severity of dementia 0 = within normal limits to 6 = most severe</p> <p>Only items 1-17 are considered in the total score Range 0-102 Higher scores indicate greater depression symptomatology</p>	20-30 minutes	Dementia patients inpatient or outpatient	<p>Inter-rater reliability: Depression items: (r = .69-.74, $p < .0001$) Other items: (r = .28 (mania) - .77 (functional impairment) $p < .01$ for all</p> <p>Reliable in mild to moderate AD but not in severe AD</p> <p>Construct validity: correlation with Global depression scores (r = .73)</p>

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35. Hospital Anxiety and Depression Scale (HADS)	Anxiety Depression	Self-report	14 items (2 subscales, 7 items each)	Based on past week Scored from 0-3 Specific response wording varies with each item Total for each subscale ranges from 0-21 Higher scores indicate greater symptoms	<10 minutes	General population in community and hospital settings, has been used in patients with dementia	Cronbach's Alpha General population Depression = .67-.90 Anxiety = .68-.93 Older Adults Depression = .77 Anxiety = .76 Convergent Validity: Ranged from .49-.83 Sensitivity and Specificity were found to be approximately .80
36. Depression Anxiety Stress Scale (DASS)	Depression Anxiety Stress	Self-report	Long-form version:	Based on past week Rated 0 = Did not apply to me at all to 3 = Applied to me very much, or most of the time Scores are summed for each scale (Range 0- 42/scale) Higher scores indicate greater symptoms	5-10 minutes (long-form)	General population in clinical and non-clinical community settings	Concurrent: DASS and BAI (r=0.81); DASS and BDI (r=0.74) $\alpha=.91$ Long-form subscales Cronbach's alpha: D=0.97 A=0.92 S=0.95 Short-form subscales Cronbach's alpha: D=0.94 A=0.87 S=0.91

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<p>37. Rating Anxiety in Dementia (RAID)</p> <p>RAID with structured interview also available</p>	Anxiety	Clinician judgment based on interviews with caregiver (formal or informal) and with the person with dementia and chart review	20 items (6 subgroups)	<p>Based on past 2 weeks</p> <p>Rated 0 = absent to 3 = severe</p> <p>Range 0-60</p> <p>>= 11 suggests significant clinical anxiety</p>	10-15 minutes	Persons with dementia in hospitals, nursing homes, and community	<p>Inter-rater reliability: kappas ranged from .51 to 1 and overall agreement ranged from 82-100%.</p> <p>Test-retest reliability: kappas ranged from .53-1 and overall agreement ranged from 84-100%</p> <p>Internal Consistency: $\alpha = .83$</p> <p>Content validity: panel of experts and professionals working with older dementia patients</p> <p>Concurrent validity: correlation with Carer's rating (.73). Only 38 of the 83 participants were able to complete the other measures of anxiety: Clinical Anxiety Scale (.54), Anxiety Status Inventory (.62). All correlations were significant at $p < .001$. A modified version of the RAID with the depression items removed was compared to the CSDD (.2).</p> <p>Construct validity: Principal component analysis found a 5 factor structure of 18 items and accounted for 63.8% of variance. KMO = .768.</p>

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38. Geriatric Anxiety Inventory (GAI)	Anxiety	Self-report or nurse-administered	20 items	Based on past week Rated 0 (disagree) to 1 (agree) Range 0-20 Scores of ≥ 9 indicates clinical anxiety symptomatology	Not specified.	Older adults community dwelling and nursing homes, has been used in patients with dementia	$\alpha = 0.91$ among normal elderly $\alpha = 0.93$ in psychogeriatric sample. Specificity: 0.84 Sensitivity: 0.75 Area under ROC curve: 0.80 (95% CI 0.64-0.97)
39. Beck Anxiety Inventory (BAI)	Anxiety	Self-report	21 items	Based on past week Rated 0 = not at all to 3 = severely, it bothered me a lot Range 0-63 Higher scores indicate greater anxiety 0-21 = low anxiety 22-35 = moderate anxiety 36+ = potential for concern	Time to complete: 10 minutes; Time to score: 5 minutes	General population in community settings	$\alpha = 0.92$ Test-retest: 0.75 (df = 81); one week interval Convergent: Correlation between BAI and HAM-A and HAM-D were 0.51 (df = 150) and 0.25 (df = 153), respectively. Discriminate: Correlation between BAI and CCL-A (0.51, df = 151), CCL-D (0.22, df = 150), and HS (0.15, df = 158) One study (Weherell & Gatz) found limitations with the use in older adults and another questioned its use in patients with Parkinson's

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40. The Worry Scale	Worry	Patient rated	8 items	Rating period not stated Rated 5 = Always to 1 = Never 2 items are reverse-coded Range 8-40 Higher scores = greater worry	Not specified	Persons with dementia living in the community	Internal consistency: $\alpha = .85$ Construct validity: factor analysis found 1 dimension with factor weights of .448-.776 Concurrent Validity: correlations with State trait Anxiety Inventory ($r = .55$, $p < .0001$)

Table 1. Notes

¹ The Behavioral Domain column lists area using the labeling of behaviors as reported within the cited article.

α = Cronbach's alpha

ABID = Agitated Behavior in Dementia Scale

ABS = Aggressive Behavior Scale

ADL = Activities of Daily Living

AES - C = Apathy Evaluation Scale - Clinician

AES - I = Apathy Evaluation Scale - Informant

AES - S = Apathy Evaluation Scale - Self

AES = Apathy Evaluation Scale

AI = Activity Inventory

AWS = Algate Wandering Scale

V2 = version 2

BAI = Beck Anxiety Inventory

BARS = Brief Agitation Rating Scale

BDI = Beck Depression Inventory

BEHAVE-AD = Behavioral Pathology in Alzheimer's Disease

BRSD = CERAD Behavior Rating Scale for Dementia

BSSD = Behavioral Syndromes Scale for Dementia

CABOS = Computer Assisted Behavioral Observation Systems

CCL - A = Cognition Checklist for Anxiety

CCL - D = Cognition Checklist for Depression

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<p>CDR = Clinical Dementia Rating Scale</p> <p>CES-D = Center for Epidemiologic Studies Depression Scale</p> <p>CMAI = Cohen Mansfield Agitation Inventory</p> <p>CMAI = Cohen-Mansfield Agitation Inventory</p> <p>CSDD = Cornell Scale for Depression in Dementia</p> <p>DAIR = Dementia Apathy Interview and Rating Scale</p> <p>DASS = Depression Anxiety Stress Scale</p> <p>DBD = Dementia Behavior Disturbance Scale</p> <p>DBRS = Disruptive Behavior Rating Scales</p> <p>DMAS = The Dementia Mood Assessment Scale</p> <p>DSM-IV = Diagnostic and Statistical Manual of Mental Disorders IV</p> <p>DSS = Dementia Signs and Symptoms Scale</p> <p>ESS = Epworth Sleepiness Scale</p> <p>FrSBe = Frontal System Behavioral Scale</p> <p>GAI = Geriatric Anxiety Inventory</p> <p>GDS = Geriatric Depression Scale</p> <p>HADS = Hospital Anxiety and Depression Scale</p> <p>HAM-A = Hamilton Rating Scale for Anxiety</p> <p>HAM-D = Hamilton Rating Scale for Depression</p> <p>HD = Huntington's Disease</p> <p>IADL = Instrumental Activities of Daily Living</p> <p>IAS = Irritability Apathy Scale</p> <p>KBCI = Key Behavior Change Inventory</p> <p>LARS = Lille Apathy Rating Scale</p> <p>MCI = Mild Cognitive Impairment</p> <p>MDS = Minimum Data Set</p> <p>mMMSE = Modified Mini-Mental Status Exam</p> <p>MOAS = Modified Overt Aggression Scale</p> <p>NHBPS = The Nursing Home Behavior Problem Scale</p> <p>NOISE = Nurse Oriented Scale for Inpatient Evaluation</p> <p>NOSGER = Nurses' Observation Scale for Geriatric Patients</p> <p>NPI = Neuropsychiatric Inventory</p> <p>NPI-C = Neuropsychiatric Inventory - Clinician</p> <p>NPI-Q = Neuropsychiatric Inventory - Questionnaire</p> <p>NRS = The Neuro-behavioral Rating Scale</p>							

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<p>OAS = Overt Aggression Scale OASS = Overt Agitation Severity Scale PANSS = Positive and Negative Symptom Scale PAS = Pittsburgh Agitation Scale PD = Parkinson's Disease PHQ-9 = Patient Health Questionnaire - 9 PLUT = Plutchik Scale PSQI = Pittsburgh Sleep Quality Index RAGE = Rating Scale for Aggressive Behavior in the Elderly RAID = Rating Anxiety in Dementia RAS = Ryden Aggression Scale RMBPC = Revised Memory and Behavior Problem Checklist SANS = Scale for the Assessment of Negative Symptoms SDI = The Sleep Disorders Inventory SF - 20 = 20-item Short Form Survey TBI = Traumatic Brain Injury</p> <p>Brief Psychiatric Rating Scale not included since generally used to assess psychosis in patients with schizophrenia.</p> <p>Scale for the Assessment of Negative Symptoms (SANS) and Positive and Negative Symptom Scale (PANSS) are not included since primarily used in patients with schizophrenia.</p> <p>Unified Parkinson's Disease rating scale not included as it is a single item for apathy that does not have any reliability measure.</p> <p>Hamilton Depression Rating Scale not included because it was first published in 1960 and is no longer considered the gold standard. While it has adequate internal reliability, many of the items do not contribute to depression severity, response options are not optimal, and the retest reliability is poor. Content validity has also been found to be poor (Bagby, Ryder, Schuller & Marshall, 2004).</p> <p>The Mini Nutritional Assessment was not included because it does not address behavior. The Nutritional Risk Index and DETERMINE Your Nutritional Health Checklist were not included because they do not address behavior and because validity has not been established.</p> <p>GDS was not included as at least two studies have found it not to be as reliable and valid in a dementia population as in the general geriatric population (Burke, 1989; Korner, 2006).</p> <p>CES-D was not included as there was no evidence of reliability and validity in a dementia population.</p>							

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<p>State/Trait anxiety scale: originally published prior to 1980.</p> <p>Geriatric Evaluation by Relative's Rating Instrument (GERRI) Schwartz, G. (1983). Development and validation of the Geriatric Evaluation by Relative's Rating Instrument (GERRI). Psychological Reports. 53: 479-88-not included because there is no subscale for neuropsychiatric symptoms.</p> <p>Clinical Assessment of Psychopathology among Elderly Residents (CAPER): Reichenfeld (1992) not included because it does not address specific behaviors of dementia-it is for diagnosis of psychotic disorders. It is also based on psychiatrist interview.</p>							