Center for Epidemiological Studies Depression Scale (CES-D)

PURPOSE

The CES-D is a brief self-report measure that assesses symptoms of depression in the general population.

LINK TO INSTRUMENT

INSTRUMENT DETAILS

ACRONYM

CES-D

AREA OF ASSESSMENT

Depression

ASSESSMENT TYPE

Patient Reported Outcomes

ADMINISTRATION MODE

Paper & Pencil

COST

Not Free

COST DESCRIPTION

Available in:

Radloff, L. (1977). ""The CES-D Scale: A Self Report Depression Scale for Research in the General."" Applied psychological measurement 1(3): 385-401

DIAGNOSIS/CONDITIONS

Arthritis + Joint Conditions, Brain Injury Recovery, Cancer Rehabilitation, Spinal Cord Injury, Stroke Recovery

POPULATIONS

Stroke Spinal Injuries Orthopedic Surgery Older Adults and Geriatric Care

Non-Specific Patient Population Cancer

KEY DESCRIPTIONS

- A 20-item, self-report measure designed to be used in the general population that assess current symptoms of depression (i.e. this week).
- Items are based on symptoms associated with depression used in previously validated measures of depression.

NUMBER OF ITEMS

20

EQUIPMENT REQUIRED

- Pencil
- Paper

TIME TO ADMINISTER

20 minutes

10-20 MINUTES

REQUIRED TRAINING

No Training

AGE RANGES

:ent	Adult	Elderly Adult
	18 - 64	65 +
	YEARS	YEARS

ICF DOMAIN

Activity

MEASUREMENT DOMAIN

Emotion

CONSIDERATIONS

- 10 Item version of the CES-D is available
- The CES-D has been translated into a number of languages
- The CES-D requires a 6th grade reading level
- A children's version is also available

Chronic Stroke: (Agrell & Dehlin, 1989)

Some items contained in the CES-D did not significantly correlate with the sum of the measures score, these include:

- I felt fearful
- People were unfriendly
- I felt that people disliked me

Do you see an error or have a suggestion for this instrument summary? Please e-mail us!

Non-Specific Patient Population

STANDARD ERROR OF MEASUREMENT (SEM)

Hepatitis C population: (Clark et al, 2002; *n* = 116; median age = 46 (range = 27–63) years)

CES-D scores pre and post-treatment:

Assessment	Mean	SEM*	95% CI
Pre-treatment	13.974	0.907	12.177–15.771
4 weeks post	19.543	0.977	17.607–21.479
24 weeks post	19.966	1.053	17.880–22.051

*SEM = Standard Error of the Mean

CUT-OFF SCORES

Original Validation Study: (Radloff 1977; General population)

- The standard cut-off score suggesting depression > 16 (Sensitivity = 0.95, Specificity = 0.29)

General Population: (Wada et al 2006, n = 2219; age 21–68 years; used to assess depression in the workplace; Japanese sample)

- Cut-off suggested for Japanese general population > 19 points (Sensitivity = 92.7%, Specificity = 91.8%)

TEST/RETEST RELIABILITY

Original Validation Study: (Radloff, 1977):

Original Test-Retest by Time and Mode of Administration Indicating Depression:

By mail (Completed by participant):

Time Interval	*n*	Strength	*r* (between administrations)
2 Week	139	Adequate	0.51
4 Weeks	105	Adequate	0.67
6 Weeks	97	Adequate	0.59
8 Weeks	78	Adequate	0.59
Total	419	Adequate	0.57

Reinterview:

Time Interval	*n*	Strength	*r* (between administrations)
3 Months	378	Adequate	0.48
6 Months	349	Adequate	0.54
12 Months	472	Adequate	0.49

Psychiatric Patients: (Roberts et al, 1989; *n* = 562, study designed to assess possible language and/or cultural differences between groups when assessed with the CES-D)

CES-D Test Re-test Reliabilities for the CES-D Scale by Ethnic/Language Group and Time Interval between Interviews

	1 to 7 day Test-retest Interval			> 7 day Test-retest Interval		
Group	Strength	Reliability	*n*	Strength	Reliability	*n*
Anglo	Adequate	.741	51	Adequate	.781	28
Hispanic English / English	Adequate	.764	13	Poor	.627	9
Hispanic Spanish / Spanish	Poor	.497	19	Adequate	.797	7
Hispanic English / Spanish	Adequate	.711	27	Poor	.432	21
Hispanic Spanish / English	Poor	.608	24	Excellent	.835	15

CONSTRUCT VALIDITY

Hepatitis C Population: (Clark et al, 2002) Four factors were found, they include:

- Negative affect
- Positive affect
- Somatic
- Depressed affect/somatic

CONTENT VALIDITY

Original Validation Study: (Radloff, 1977): Symptoms of depression were identified from both clinical literature and factor analytic studies. Components of the measure include:

- Depressed mood
- Feelings of guilt and worthlessness
- Feelings of helplessness and hopelessness
- Psychomotor retardation
- Loss of appetite
- Sleep disturbance

Meta-analysis of Depression Scales: (Shafe, 2006; n = 91 studies with 51,210 participants)

Common Factors Across Measures of Depression:

	CES-D	BDI	HRSD	Zung
General Depression	Depressed affect	Negative attitude toward self	Depression	Negative symptoms
Somatic Symptoms	Somatic	Somatic	Somatic	Somatic
Positive Symptoms	Positive affect			Positive symptoms

CES-D = Center for Epidemiological Studies Depression Scale
BDI = Beck Depression Inventory
HRSD = Hamilton Rating Scale for Depression
Zung = Zung Self-Rating Depression Scale

Two items were more likely to be endorse by African American than white Participants

- People are unfriendly
- People dislike me

One item was more Likely to be endorsed by Female than male participants

- Crying spells

FACE VALIDITY

Not statistically assessed

RESPONSIVENESS

Rhinitis (Chen, 2005; n = 109; mean age = 40 (8.2) years; assessed at baseline and 24 months.

- Baseline CES-D mean (SD) = 10.5 (10)
- 24 month follow-up CESD 11.5 (9.9)
- Observed change* = 1.0 (1.3)
- Standardized Response Mean (SRM)** = 0.09 (Moderate)

*(score at followup) - (score at baseline)
**(score at follow-up) - (score at baseline)/(SD of observed change)

Stroke

CUT-OFF SCORES

Chronic Stroke: (Agrell & Dehlin, 1989)

CES-D Cut-off Scores, Sensitivity & Specificity; A Comparison Across Measures Indicating Depression

	Recommended cut-score	Sensitivity (%)	Specificity (%)
CES-D	20	56	91
GDS	10	88	64
Zung	45	76	96

CES-D = Center for Epidemiologic Studies Depression Scale
GDS = Geriatric Depression Scale

INTERNAL CONSISTENCY

Chronic Stroke: (Agrell & Dehlin, 1989; n = 39; mean age = 80 (range 61-93) years; mean time since stroke onset = 14 months)

—**Poor** internal consistency; (Cronbach's alpha = 0.64)

CRITERION VALIDITY (PREDICTIVE/CONCURRENT)

Chronic Stroke: (Agrell & Dehlin, 1989)

- **Excellent**: CES-D and the Zung ($r = 0.81$)
- **Excellent**: CES-D and the Geriatric Depression Scale ($r = 0.82$)

CONSTRUCT VALIDITY

Acute Stroke: (Shinar et al, 1986; $n = 27$; median age = 56 (range = 28 to 73) years, all participants non-aphasic; first assessed 7 to 10 days post stroke)

CES-D Administered by a Nurse and Psychiatric Research Assistant

Measure:	Strength	*r*	*p*

Psychiatric diagnosis, DSM-III	Excellent	0.77*	$p < .0001$
Zung depression scale	Excellent	0.65	$p < .002$
Hamilton depression test	Adequate	0.57	$p < .002$
Present state exam	Excellent	0.74	$p < .0001$

*Spearman's rho

Cancer

TEST/RETEST RELIABILITY

Cancer Patients: (Hann et al, 1999; $n = 117$; mean age = 53.7 (12.4) years; healthy comparison $n = 62$, mean age = 53.5 (11.3) years)

CES-D test re-test scores of Cancer patients and healthy comparisons

Interval	Patient Group*	Healthy Comparison*	Sig
Time 1	10.9 (8.9)	8.1 (7.0)	$p < 0.05$
Time 2 (2–3 weeks later)	12.8 (10.2)	7.8 (7.5)	$p< 0.001$

*Mean (SD)

Older Adults and Geriatric Care

INTERRATER/INTRARATER RELIABILITY

Community Dwelling Elderly Women: (Bassett et al, 1990; $n = 532$; mean age = 75 years)

- Adequate Inter-rater reliability ($r = .597$, $p < .001$)

CONTENT VALIDITY

Elderly: (Cole et al, 2000; *n* = 2340; sample all > 65 years old; mean CES-D scale score = 8)

Orthopedic Surgery

NORMATIVE DATA

Orthopaedic & Neurological Patients: (Caracciolo & Giaquinto, 2002; n = 101 orthopaedic and 50 neurological patients)

CES-D and Other Common Measures of Impairment Across Diagnostic Categories:

	Orthopaedic Patients		Neurological Patients			
Measures	**1st Q**	**Median**	**3rd Q**	**1st Q**	**Median**	**3rd Q**
CES-D	9	15	24	14	18.5	29
MMSE	25	27	28	23.2	25.6	27.9
CIRS-SI	1.1	1.2	1.3	1.2	1.3	1.5
FIM	72	81	103	65	85	99
Ham-D	5	8	13	6	12.5	18
Age (years)	61	70	77	50	67	73

1st Q = first quartile
3rd Q = third quartile

CES-D = Center for Epidemiological Studies-Depression scale
MMSE = Mini Mental State Examination
CIRS-SI = Cumulative Illness Rating Scale
FIM = Functional Independence Measure
Ham-D = Hamilton rating scale for Depression

CRITERION VALIDITY (PREDICTIVE/CONCURRENT)

Orthopaedic & Neurological Patients: (Caracciolo & Giaquinto, 2002

- **Excellent** correlation between CES-D and Ham-D suggesting concurrent validity ($r > 0.60$)

Spinal Injuries

NORMATIVE DATA

Chronic SCI: (Miller et al, 2008; *n* = 55; mean age = 40.6 (12.6) years; ASIA A = 62%, ASIA B = 38%; mean time since injury = 15.2 (11.7) years)

- Mean CES-D scores = 15.2 (range 0–42)
    - 30% scored over 19 points
    - 39% scored over 15 points

TEST/RETEST RELIABILITY

Chronic SCI: (Miller et al, 2008, 2 weeks between assessments)

- **Excellent** total score test–retest reliability (ICC = 0.87; 95% C.I. 0.79–0.93)

INTERNAL CONSISTENCY

Chronic SCI: (Miller et al, 2008)

- **Excellent** internal consistency (Cronbach's alpha = 0.91)

CONSTRUCT VALIDITY

Chronic SCI: (Miller et al, 2008)

CES-D, VAS-F and SF-36 Correlations:

Measure	Strength	CES-D
VAS-F	Adequate	0.52
SF-36 mental health	Excellent	0.75*

SF-36 emotional role function	Adequate	0.55*
SF-36 vitality	Adequate	0.54*
SF-36 pain	Poor	0.27*
SF-36 social role function	Adequate	0.37*
SF-36 physical function	Adequate	0.34*
SF-36 physical role function	Adequate	0.40*
SF-36 general health	Adequate	0.57*

VAS-F = visual analogue scale of fatigue.
*P < 0.05

Chronic SCI: (Anton et al, 2008; *n* = 48 (ASIA A = 30, ASIA B = 18); mean time since injury = 14.9 years)

Correlation Between the FSS, CES-D, VAS-F and SF-36:

Variable	FSS	*p*
CES-D	0.58	.001
VAS-F	0.67	.000
SF-36 vitality score	- 0.48	.010

FSS = Fatigue Severity Scale
VAS-F = Visual Analog Scale for Fatigue
SF-36 = Medical Outcomes Study 36-Item Short-Form Health Survey

FLOOR/CEILING EFFECTS

Chronic SCI: (Miller et al, 2008)

—Less than 15% of participants scored at one extreme or the another suggesting minimal to no floor or ceiling effect

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