

Validity and Diagnostic Performance of Depression Scales with Latina/o Undergraduates

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Abstract

As the need for culturally-valid instruments are central to accurate assessment for increasing student concerns in higher education, this study explored the reliability and validity of three commonly-used depression scales with 203 Latina/o undergraduates. Scales commonly used with students, the Beck Depression Inventory-II (BDI-II), Center for Epidemiological Studies - Depression Scale (CES-D), and the Self-rating Depression Scale (SDS) were examined. The scales varied in item response, diagnostic performance, reliability, construct validity, and in detection of sex and class standing differences for the study's sample. Considerations for the scales use with Latina/o undergraduates are addressed for research and practice.

Depression and College Students

- Incidence of depressive symptomatology and depression among students is a growing challenge (American College Health Association, 2008)
- Depression is 6th rated health barrier to academic achievement and 4th rated health concern in national study of 11,343 undergraduates (ACHA, 2008)
- Grade difficulties, loneliness, money concerns, boy/girlfriend problems are reported reasons for depression by students who first experienced depression since attending college (Furr, Westefeld, McConnell, & Jenkins, 2001)
- University counseling centers have reported increased complexity and severity of student concerns (Benton, Robertson, Tseng, Newton, & Benton, 2003)
- Depression incidence has prompted changes in mental health screening and service delivery (Benton et al., 2003)

Depression and Latina/o College Students

- Experience of perceived discrimination associated with stress and negative effects on mental health (i.e., psychological distress, suicidal ideation, state and trait anxiety, clinical depression) (Huang & Goto, 2008)
- Encounter educational obstacles (e.g., hostile university climates, stereotypes), interpersonal stressors (cultural incongruity, lack of validation) and cultural expectations (contribution of resources to while in school) (Gloria, Castellanos & Orozco, 2005; Saenz & Ponjuan, 2009)
- Prone to acculturative stress, which is often associated with anxiety and depression (Crocket et al, 2007)

Depression Scales with Latina/o Undergraduates / Students

- Studies frequently utilize White or Anglo samples as the normative population against which other individuals are compared (Falicov, 2003)
- BDI-II found to have high reliability with a diverse college student population (i.e., African American, Hispanic, Native American and White), with no differences in scores among groups (Carmody, 2005)
- Spanish version of the CES-D had a Cronbach's alpha of .89 with non-psychiatric Spanish populations; however, the cut-off score (i.e., 16) yielded large number of false positives as oppose to those identified as depressed by collaborating clinicians (Vazquez et al, 2006)
- For the CES-D, some items are more salient indicators of depression for Mexican American than for Anglo American youth (Crockett, 2005)
- Using the Zung Self-report Depression Scale, non-US born Hispanic adolescents reported the highest degree of depressive symptoms and had lowest academic achievement when compared to other adolescents of diverse ethno-cultural backgrounds (Kochkine, 2006)

Purpose of Study

To assess the reliability and validity of the three commonly-used depression scales (i.e., BDI-II, CES-D, and SDS) with Latina/o undergraduates. Scales assessed for:

- Item frequency response
- Internal consistency coefficient
- Diagnostic assessment
- Convergent validity
- Construct validity
- Differences by sex and class standing

Student Participants

<u>Surveys</u>	<u>Sex</u>	<u>Age</u>
280 distributed	147 Females	Range: 18-34 years
203 completed	53 Males	$M = 21.4$
202 met study criteria	3 Missing	$SD = 2.12$
72% response rate		2 missing
<u>Ethnicity</u>	<u>Generation level</u>	<u>Class Standing</u>
156 Mexican American	26 First Generation	18 Freshmen
17 Central American	132 Second Generation	30 Sophomores
10 South American	25 Third Generation	69 Juniors
6 Multicultural	12 Fourth Generation	81 Seniors
4 Cuban American	6 Fifth Generation	5 Missing
4 Other Latina/o	2 Missing	
1 Puerto Rican		
4 Missing		

Settings and Procedures

- Mid-size west coast university
- Research Type I Institution
- Latina/os comprise 14% of the student population
- IRB-approved study
- 30-35 minutes to complete survey
- Participants recruited from all majors and grade levels, Social Science subject pool (included extra credit), and ethnic-based organizations (e.g., cultural clubs, sororities)
- Counterbalanced scales with demo sheet placed first
- List of counseling and support services provided

Instrumentation

Scale Name	Author	Year	Construct Measured	# of Items	Cut-off Score for Depression	Literature Alpha	Study Alpha	
1	Demographic Sheet	--	Personal and educational background questions	30	--	--	--	
2	Beck Depression Inventory - II (BDI-II)	Beck	1961	Depression	21	10-18 mild/moderate 19-29 moderate/severe 30-63 severe	.92	.88
3	Center for Epidemiological Studies – Depression Scale (CES-D)	Radloff	1977	Depression	20	15-21 mild/moderate >22 probable major depression	.80	.80
4	Self-report Depression Scale (SDS)	Zung & Durham	1965	Depression	20	50-59 minimal/mild 60-69 moderate/marked ≥70 severe/extreme	.73	.67
5	Memorial Symptomatology Assessment Scale (MSAS)	Portenoy	1994	Symptoms Psychological Subscale (MSAS-Psych) Physical Subscale (MSAS-Phys)	6 12	--	.80 .82	Psych .75 Phys .88
6	Diagnostic Statistical Manual 4 th Edition Depression Scale (DSM)	Author	2007	Depression criterion based on DSM-IV for Major Depression Disorder	6	--	--	.69

Results

Item Frequency and Distribution

- BDI-II: range 2-13 ($M = 6.57$, $SD = 3.37$, mode = 4)
 - Frequently unanswered items:
 - 11 = 'agitation'
 - 14 = 'worthlessness'
 - 16 = 'changes in sleeping pattern'
 - 18 = 'changes in appetite'
 - 21 = 'loss of interest in sex'
- CES-D: range 2-7 ($M = 3.70$, $SD = 1.30$, mode = 3)
 - Frequently unanswered items:
 - 6 = 'I felt depressed'
 - 8 = 'I felt hopeful about the future'
 - Skewed items:
 - 9 and 19 positively skewed (2.02 and 3.01) with leptokurtic distributions (9.76 and 3.93), respectively
- SDS: range 1-28 ($M = 6.70$, $SD = 6.78$, mode = 3)
 - Frequently unanswered items:
 - 6 = 'I still enjoy sex'
 - 8 = 'I have trouble with constipation'
 - 19 = 'I felt that others would be better off if I were dead'
 - Skewed items:
 - 8, 9, and 19 positively skewed (2.89, 2.03, 4.89) with leptokurtic distributions (8.14, 3.79, 25.48), respectively

Scales' Descriptive Information & Diagnostic Performance

- BDI-II (182 valid), range 0 to 50 ($M = 10.13$, $SD = 7.74$)
 - 134 (73.6%) "minimal" range for probable depression
 - 26 (14.25%) "mild"
 - 16 (8.5%) "moderate"
 - 6 (3.1%) "severe"
- CES-D (186 valid), range 0 to 47 ($M = 13.16$, $SD = 9.19$)
 - 130 (69.9%) did not meet criteria for depression
 - 56 (30.1%) met criteria for probable depression
- SDS (151 valid), range 21 to 54 ($M = 41.80$, $SD = 6.42$)

138 (91.4%) no depression symptoms
13 (8.6%) "mildly depressed"

Internal Consistency Coefficients

- BDI-II, $\alpha = .88$
 - 21 cases excluded (10.3%)
 - all item-total correlations positive (.29 to .64)
- CES-D, $\alpha = .80$
 - 17 cases excluded (8.4%)
 - 3 items (4, 12, 16) with negative item-total correlations and 1 item (8) close to zero (i.e., 10 or less)
 - individually deleting items to 16-item scale yielded $\alpha = .89$
- SDS, $\alpha = .676$
 - 56 excluded cases (25.6%)
 - 2 items (8, 10) with negative inter-item correlations and 5 items (1, 2, 4, 15, 19) with close to zero
 - individually deleting items to 9-item scale with $\alpha = .85$

Convergent Validity

- BDI-II and CES-D ($r = .64$, $p \leq .001$)
- CES-D and SDS ($r = .36$, $p \leq .001$)
- BDI-II and SDS ($r = -.04$, $p > .05$)
- SDS-Rev and BDI-II ($r = .48$, $p \leq .001$)
- SDS-Rev and CES-D ($r = -.12$, $p \geq .05$)

Differences in Depression Scores by Sex and Class Standing

- BDI-II
 Females ($M = 10.90, SD = 8.43$) > males ($M = 8.18, SD = 5.32$)
 $t = 2.22$ ($df = 178$), $p \leq .05$
 Freshman ($M = 15.39, SD = 12.59$) > seniors ($M = 8.94, SD = 6.15$)
 $F(3, 176) = 3.45, p \leq .05$
- CES-D
 No differences by sex
 Freshman ($M = 18.71, SD = 13.90$) > seniors ($M = 12.05, SD = 9.21$)
 $F(3, 181) = 2.47, p = .064$
- SDS
 No differences by sex or class standing

Scale Descriptives and Correlations

	<i>n</i>	<i>M</i>	<i>SD</i>	CES-D	SDS	SDSR	PSYCH	PHYS	DSM
BDI-II	182	10.13	7.74	.64**	-.04	-.48**	.43**	.34**	.44**
CES-D	186	38.13	7.49		.36**	-.12	.41**	.27**	.35**
SDS	151	41.79	6.41			.82**	.07	-.04	-.01
SDS-Rev	198	19.85	5.23				-.23**	-.23*	-.28**
MSAS-Psych	194	3.98	1.83					.65**	.83**
MSAS-Phys	193	4.38	3.61						.80**
DSM	196	3.27	1.66						

Note: $p \leq .01$ * $p \leq .001$ **

Discussion and Implications

- Missing items from each depression scale addressed sex (i.e., loss of interest in sex) and direct expression of concerns (i.e., feelings of worthlessness), influencing scales reliability
 - *Hold in context the cultural norms and values when interpreting missing items or discussing aspects of depression for Latina/o undergraduates*
- Scales varied in diagnostic performance: CES-D identified almost third of sample as having probable depression; SDS indicated fewest students as depressed (8.6% mildly depressed), BDI-II indicated nearly two times more mildly depressed student than SDS, with moderate/severe depression (11.6%)
 - *Different diagnostic performance warrants close examination of depression manifestation and how instruments are implemented and interpreted with Latina/o undergraduates*
- Sex and class standing differences emerged for BDI-II only
 - *Address of gender expectations and educational experiences by class standing warranted*
- Scales varied in correlation, with BDI-II and CES-D related to psychological (MSAS-Psych) and physical (MSAS-Phys) symptoms, and DSM criterion; Relationships not yielded for the SDS
 - *SDS may have limited use with Latina/o undergraduates*
- Overall, the BDI-II emerged as the most effective scale for assessing depression in Latina/os
 - *Practitioners should contextualize the assessment of their clients, consider cultural validity of scale, and extend assessment beyond a single scale*
 - *Use depression scale as part of the larger evaluation and contextualization of Latina/o students concerns (i.e., a means to augment client narrative/story rather than define it)*

Limitations - Research Considerations

- Symptomatology assessment utilizing two-week time span may not account for confounding variables (e.g. being away from family for first time) or characteristics unique to the Latina/o undergraduates (e.g. lack of sleep, weight gain, cultural incongruity, academic distress)
- Specific Latina/o culture- and value-based depression scale warranted