

CancerSupportSource®-Caregiver: Psychometric Properties of 2-item Depression and Anxiety Risk Screening Measures for Family and Informal Cancer Caregivers

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Background

- Caring for loved ones with cancer can affect the quality of life and health of caregivers; screening for caregiver depression and anxiety can mitigate the risks of under-identifying and undertreating these conditions.
- CancerSupportSource®-Caregiver (CSS-CG) is a 33-item multidimensional caregiver distress screening and referral program, with items related to depression (feeling sad or depressed; feeling lonely or isolated) and anxiety (feeling nervous or afraid; worry about the future and what lies ahead).

Aims

- This study evaluated the psychometric performance of CSS-CG depression (CSS-D2) and anxiety (CSS-A2) risk screening subscales among community-based family and informal caregivers to people living with cancer.

Methods

- 328 caregivers enrolled in Cancer Support Community's online Cancer Experience Registry, provided information on caregiving history, rated CSS-CG items (0 = *Not at all*; 4 = *Very seriously*), and completed criterion validity measures including PROMIS-29 v2.0 Depression & Anxiety Short Forms 4a (PROMIS-D; PROMIS-A), and PHQ-2 Depression & GAD-2 Anxiety.
- We calculated 2-item CSS-D2 and 2-item CSS-A2 risk scales (possible range: 0-8 for each scale); calculated Pearson correlations; sensitivity/specificity and positive/negative predictive values (PPV/NPV) for CSS-CG risk scale cut-offs; and area under the curve (AUC). Reference scores included PROMIS-D T-score ≥ 60 and PHQ-2 ≥ 3 to classify depression risk, and PROMIS-A ≥ 62 and GAD-2 ≥ 3 for anxiety risk.

Participants

N = 328	Mean / n	SD / %
Age (years) Range: 20 – 89	52	13
Race and Ethnicity		
Non-Hispanic White	277	84%
Non-Hispanic Black	9	3%
Hispanic/Latino/Latina	19	6%
Female	261	80%
Caregiver relationship to patient		
Caring for spouse	154	47%
Caring for parent	71	22%
Caring for child	24	7%
Currently providing care	229	70%
Hours of care provided weekly		
≤ 20 hours	139	42%
21-80 hours	88	27%
> 80 hours	76	23%
Years providing care		
< 1 year	80	24%
1 year	59	18%
2 years	30	9%
3-5 years	64	20%
> 5 years	60	18%

Most frequent cancer diagnoses among care recipients included breast (14%), lung (13%), colorectal (8%), and head and neck (6%). Care recipients averaged 4.0 years since diagnosis (SD=5.4, range <1-39); 41% metastatic at diagnosis; 36% ever experienced recurrence.

Acknowledgments

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References

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Results

Pearson Correlations with Criterion Validity Measures

	α	Mean/SD	PROMIS Depression	PHQ-2	PROMIS Anxiety	GAD-2
CSS Depression (CSS-D2)	.80	3.05/2.31	.76	.72	.74	.71
CSS Anxiety (CSS-A2)	.84	3.92/2.43	.71	.61	.79	.74

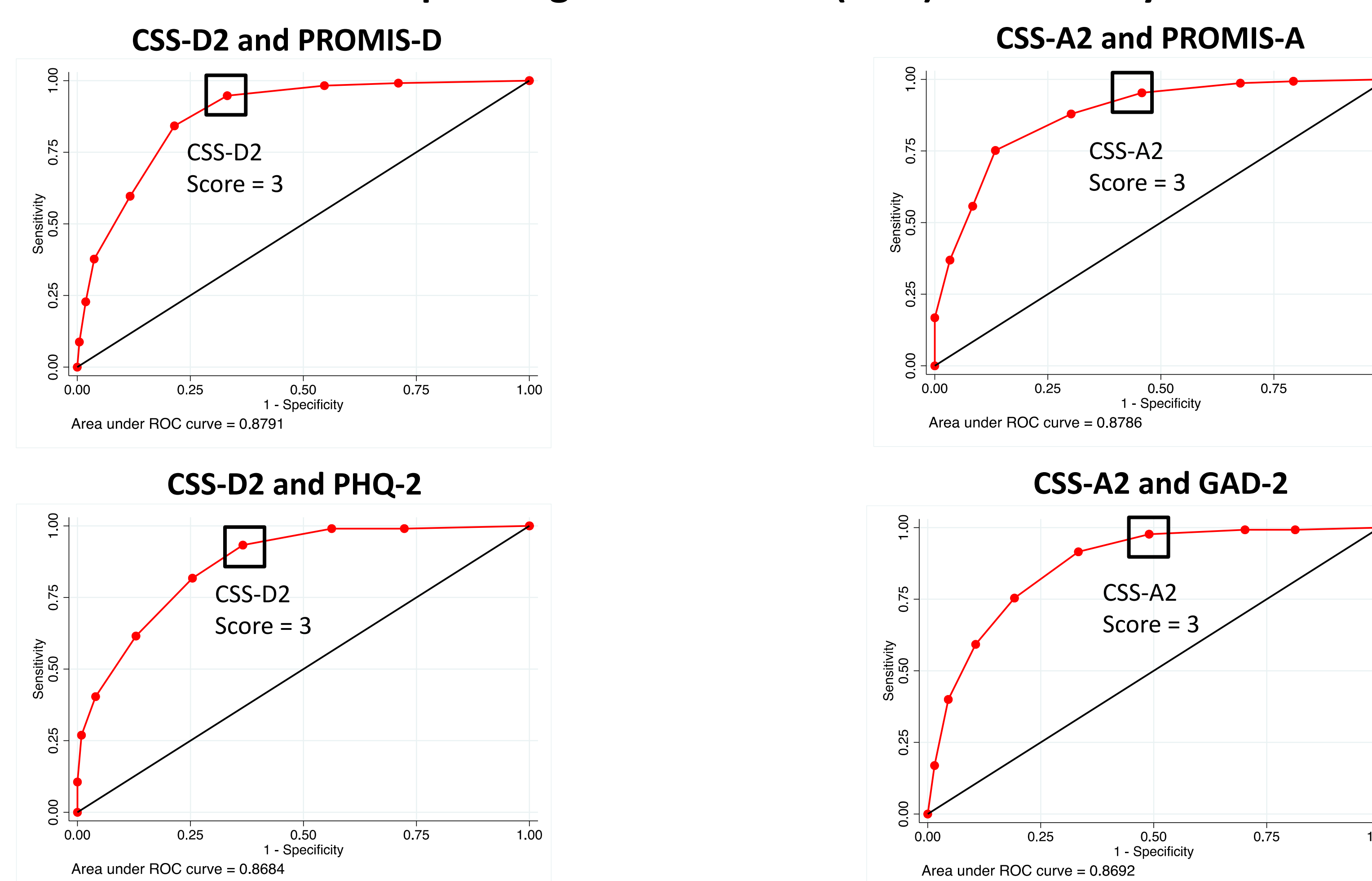
All $ps < .001$; α = Cronbach's alpha

- CSS-D2 was strongly correlated with PROMIS-Depression ($r=.76$) and PHQ-2 ($r=.72$), $ps < .001$.
- CSS-A2 was strongly correlated with PROMIS-Anxiety ($r=.79$) and GAD-2 ($r=.71$), $ps < .001$.
- CSS-D2 and CSS-A2 demonstrated good internal consistency reliability ($\alpha = .80$ and $.84$, respectively).

Sensitivity, Specificity, and Predictive Values

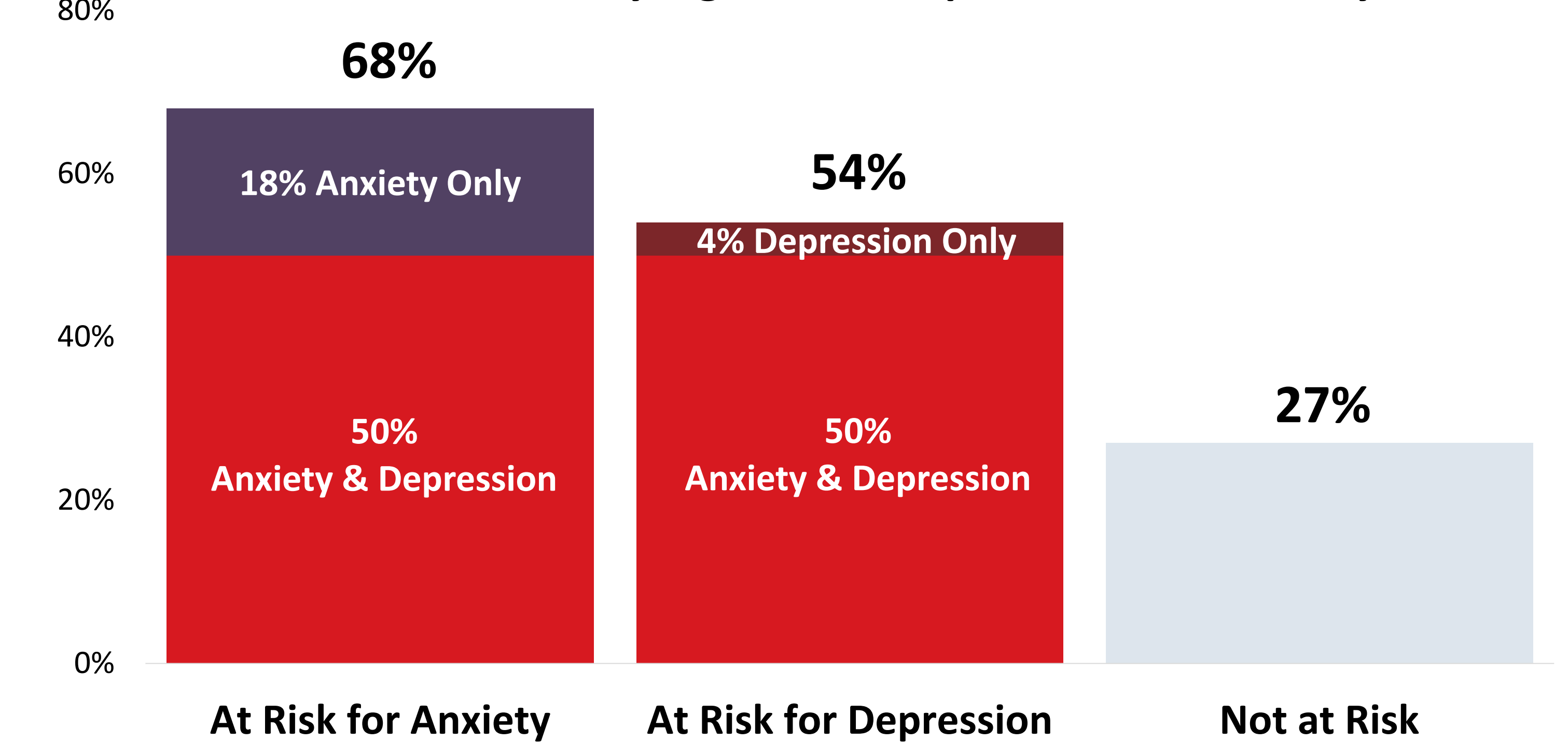
CSS Scale	Comparison Measure	AUC	CSS Cutoff	Sensitivity	Specificity	NPV	PPV
CSS-D2	PROMIS Depression	.879	2	98.3	45.3	.98	.49
			3	94.7	66.8	.96	.60
			4	84.2	78.5	.90	.68
			PHQ-2				.868
			2	99.0	43.8	.99	.45
			3	93.3	63.4	.95	.54
			4	81.7	74.6	.90	.60
			CSS-A2				.879
			2	98.7	32.4	.97	.55
			3	95.3	54.2	.93	.63
			4	87.9	69.8	.87	.71
			GAD-2				.869
			2	99.2	29.8	.98	.48
			3	97.7	51.0	.97	.57
			4	91.5	66.7	.92	.64

Receiver Operating Characteristic (ROC) Curve Analysis



- CSS-D2 total score ≥ 3 and CSS-A2 total score ≥ 3 maximized sensitivity, with acceptable specificity.
- AUCs were $>.86$ for depression and anxiety, indicating strong performance in classifying people at risk.
- The ROC curve (red) shows the tradeoff between sensitivity and specificity.

Risk for Clinically Significant Depression and Anxiety



- 68% of caregivers were identified as at risk clinically significant anxiety and 54% were identified as at risk for clinically significant depression when using risk subscale total scores of ≥ 3 .
- 50% were identified as at risk for both clinically significant depression and anxiety.
- Individuals screened to be at risk are recommended to undergo more comprehensive assessment to determine appropriate diagnosis (if any), support, and/or treatment.

Confirmatory Factor Analysis

Item	Factor 1	Factor 2
Feeling nervous or afraid	.88	--
Worrying about the future and what lies ahead	.82	--
Feeling sad or depressed	--	.87
Feeling lonely or isolated	--	.77

- Confirmatory factor analysis supported the presence of an anxiety latent construct and a depression latent construct, and a correlation of $r = .77$ ($p < .001$) between the two factors suggested the factors are correlated but not the same.
- The 2-factor model indicated good fit (SRMR=0.015; CFI=0.992; $\chi^2(1)=6.97$, $p < .01$) and explained 93% of the variance.
- Anxiety items had high loadings (.88, .82) on the first factor and depression items had high loadings (.87, .77) on the second factor.

Conclusions and Implications

- CancerSupportSource-Caregiver depression and anxiety risk subscales demonstrated good concurrent validity and sensitivity among cancer caregivers, with lower specificity.
- Embedding clinical risk screening within the CSS-CG screening and referral program provides flexibility in assessing unmet caregiver needs and clinical distress while minimizing respondent and clinician burden.
- In implementation of CSS-CG, follow-up procedures should be well-defined for individuals who screen positive, including referral and further assessment.
- Future work will evaluate psychometric support for a shortened CSS-CG tool and how best to engage caregivers in diverse care settings.