Psychometric Properties of a 4-item Depression and Anxiety Risk Screening Tool for Cancer Survivors
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Background
• Screening for depression and anxiety is recommended for cancer survivors, which can have serious negative effects if left untreated
• CancerSupportSource® (CSS) is a cancer-related distress screening and referral program used at community-based cancer organizations and hospitals nationwide

Aims
• The study examined the psychometric performance of two depression (CSS-D) items (feeling sad or depressed; feeling lonely or isolated) and two anxiety (CSS-A) items (feeling nervous or afraid; worrying about the future and what lies ahead) in identifying risk for clinically significant levels of depression and anxiety among cancer survivors

Methods
• 1436 survivors enrolled in the Cancer Support Community’s online Cancer Experience Registry and completed the 25-item CSS and PROMIS-29, a quality of life measure that includes items assessing depression and anxiety
• Pearson correlations (r), area under the curve (AUC), and positive/negative predictive values (PPV/NPV) were calculated using a cut-off reference of T≥60 for PROMIS-Depression and T≥62 for PROMIS-Anxiety, and confirmatory factor analysis (CFA)

Participants

<table>
<thead>
<tr>
<th>N = 1436</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>58.4 ± 11.1</td>
</tr>
<tr>
<td>Range: 19.71–87.24</td>
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</tr>
<tr>
<td>Diagnosis</td>
<td>1291 90%</td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>1035 72%</td>
</tr>
<tr>
<td>Female</td>
<td>65 5%</td>
</tr>
<tr>
<td>Lung</td>
<td>54 4%</td>
</tr>
<tr>
<td>Prostate</td>
<td>54 4%</td>
</tr>
<tr>
<td>Ovarian</td>
<td>50 3%</td>
</tr>
<tr>
<td>Time since diagnosis (years)</td>
<td>4.6 ± 5.3</td>
</tr>
<tr>
<td>Range: 0–53</td>
<td></td>
</tr>
<tr>
<td>Ever metastatic</td>
<td>302 26%</td>
</tr>
<tr>
<td>Ever experienced recurrence/relapse</td>
<td>261 22%</td>
</tr>
<tr>
<td>Currently receiving treatment</td>
<td>770 54%</td>
</tr>
</tbody>
</table>

Results

Pearson Correlations with PROMIS Depression and Anxiety Scales

<table>
<thead>
<tr>
<th>CSS Depression (CSS-D)</th>
<th>CSS Anxiety (CSS-A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach’s α</td>
<td>0.83</td>
</tr>
<tr>
<td>Mean/SD</td>
<td>2.00/2.16</td>
</tr>
<tr>
<td>PROMIS Subscales</td>
<td>0.79, 0.70</td>
</tr>
</tbody>
</table>

• CSS-D was strongly correlated with PROMIS-Depression (r=.79, p<.001)
• CSS-A was strongly correlated with PROMIS-Anxiety (r=.74, p<.001)

ROC Curve Analysis

Risk for Clinically Significant Depression and Anxiety

• 34% of participants were identified as at risk for clinically significant depression; 43% of participants were identified as at risk for clinically significant anxiety
• 29% were identified 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

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeling nervous or afraid</td>
<td>.87</td>
<td>--</td>
</tr>
<tr>
<td>Feeling sad or depressed</td>
<td>--</td>
<td>.81</td>
</tr>
<tr>
<td>Feeling lonely or isolated</td>
<td>--</td>
<td>.88</td>
</tr>
</tbody>
</table>

Conclusions
• The concurrent and criterion validity of CancerSupportSource® depression and anxiety risk subscales was confirmed among cancer survivors
• Using cutoff scores of 3 or greater for both subscales yielded favorable sensitivity, although specificity was low
• CSS-D and CSS-A risk assessment scales should be used for screening of clinically-significant levels of depression and anxiety, not diagnosis
• Sites utilizing these measures should have well-defined follow-up procedures for individuals who screen positive, including referral for further assessment
• Future research on applications of CSS-D and CSS-A should include structured diagnostic interviews for further validation of risk cutoffs

Acknowledgments
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References

The Cancer Experience Registry is an online research initiative that captures the immediate and ongoing or changing social and emotional experiences of cancer survivors and their caregivers.
• The Registry is for all cancer survivors and caregivers, but also includes 10 disease-specific surveys.
• Findings contribute toward advancing research, health care and policy.
• Over 12,000 cancer survivors and caregivers are registered in the Cancer Experience Registry. Learn more or join the Registry at www.CancerExperienceRegistry.org

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