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- Medical Specialties
  - Neurology
  - Oncology
- Psychiatric Conditions
  - Alzheimer’s
  - Autism
  - Bipolar Depression
  - Postpartum Depression
  - Complicated Grief
  - Psychosis/Schizophrenia
  - PTSD
  - Sleep
- Healthcare Systems
- Outpatient Settings
  - Outpatient Psychiatry
  - Juvenile Justice
  - Integrated Primary Care
  - Veterans
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**REVIEWS OF SUICIDE RISK ASSESSMENT TOOLS**

**GUIDELINES FOR TREATMENT & ASSESSMENT OF SUICIDAL OUTCOMES**

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**CROSS-CULTURAL SETTINGS**
COLUMBIA SUICIDE SEVERITY RATING SCALE VERSIONS

C-SSRS CLINICAL PRACTICE SCREENER:

C-SSRS SELF-REPORT:
### Table 1: Studies Supporting Specific Psychometric Properties

<table>
<thead>
<tr>
<th>Psychometric Property</th>
<th>Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical Utility</strong></td>
<td></td>
</tr>
<tr>
<td>Predictive and/or Incremental Validity</td>
<td>Brent et al., 2009^; Posner et al., 2011*^; Mundt et al., 2013*; Arias et al. 2013*; Greist et al. 2014*; Gipson et al., 2015^; Horwitz et al., 2015*; Brown et al., 2015*; Arias et al., 2016*; Conway et al. 2016*; Madan et al. 2016*</td>
</tr>
<tr>
<td>Sensitivity to Change</td>
<td>Posner et al., 2011*; Ionescu et al., 2016*</td>
</tr>
<tr>
<td>Sensitivity and Specificity</td>
<td>Posner et al., 2011*; Mundt et al., 2013*; Viguera et al. 2015*; Madan et al. 2016*</td>
</tr>
<tr>
<td>Positive and Negative Predictive Value (PPV &amp; NPV)</td>
<td>Mundt et al 2013*; Viguera et al 2015*</td>
</tr>
<tr>
<td>Reliability (internal consistency)</td>
<td>Posner et al., 2011*^; Gunes et al. 2015^; Pai et al. 2015*; Madan et al. 2016*</td>
</tr>
<tr>
<td>Reliability (inter-rater; multi-method agreement)</td>
<td>Kerr et al., 2013^; Brent et al., 2009^; Hesdorffer et al., 2013*; Arias et al., 2013*; Brown et al. 2015*; Gunes et al. 2015^</td>
</tr>
<tr>
<td>Internal Structure (Factor Analysis)</td>
<td>Al-Halabi et al., 2016b*; Madan et al. 2016*</td>
</tr>
<tr>
<td>Convergent Validity &amp; Accuracy</td>
<td>Posner et al., 2011*; Kerr et al., 2013^; Gunes et al. 2015^; Pai et al. 2015*; Youngstrom et al. 2015*; Brown et al., 2015*; Madan et al.2016*</td>
</tr>
<tr>
<td>Divergent &amp; Discriminant Validity</td>
<td>Posner et al., 2011*; Kerr et al., 2013^; Gunes et al. 2015</td>
</tr>
<tr>
<td>Cross-Cultural Validation</td>
<td>Danish (Conway et al. 2016^); Korean (Pai et al. 2015*); Turkish (Gunes et al. 2015*); Spanish (Al-Halabi et al., 2016ab*)</td>
</tr>
</tbody>
</table>

* studies include adult samples; ^ studies include pediatric samples
**Table 2: Psychometric Properties of Specific C-SSRS Predictors with Coefficients**

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Criterion</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Greist et al. 2014</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>None Reported</em></td>
<td>Actual, interrupted or aborted attempts</td>
<td>All patients: 0.8% incidence rate, N=4975 Psychiatric patients: 1.1% incidence rate, N=3184</td>
</tr>
<tr>
<td><em>Wish to Be Dead</em></td>
<td>Actual, interrupted or aborted attempts</td>
<td>OR= 6.21, 95% CI = 4.18 – 9.23, p &lt;0.001 OR= 4.99, 95% CI = 3.29 – 7.56, p &lt;0.001</td>
</tr>
<tr>
<td><em>Non-Specific Active Thoughts</em></td>
<td>Actual, interrupted or aborted attempts</td>
<td>OR= 6.69, 95% CI = 4.16 – 10.76, p &lt;0.001 OR= 5.53, 95% CI = 3.38-9.04, p &lt;0.001</td>
</tr>
<tr>
<td><em>Active with any methods (not plan) w/o intent to act</em></td>
<td>Actual, interrupted or aborted attempts</td>
<td>OR= 11.16, 95% CI = 7.43-16.76, p &lt;0.001 OR= 8.36, 95% CI = 5.44-12.84, p &lt;0.001</td>
</tr>
<tr>
<td><em>Active with Some Intent to Act, without specific plan</em></td>
<td>Actual, interrupted or aborted attempts</td>
<td>OR= 19.27, 95% CI = 12.97 – 28.63, p &lt;0.001 OR= 15.24, 95% CI = 10.07-23.09, p &lt;0.001</td>
</tr>
<tr>
<td><em>Active with specific plan and intent</em></td>
<td>Actual, interrupted or aborted attempts</td>
<td>OR= 25.53, 95% CI = 16.94 – 38.47, p &lt;0.001 OR= 18.70, 95% CI = 12.16 – 28.76, p &lt;0.001</td>
</tr>
<tr>
<td><strong>Posner et al. 2011</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Baseline worst-point</em></td>
<td>Attempts</td>
<td>OR=1.45, 95% CI=1.07-1.98, p=0.02</td>
</tr>
<tr>
<td><em>Lifetime severity</em></td>
<td>Attempts</td>
<td>OR=1.43, 95% CI=0.99-2.05, p=0.05</td>
</tr>
<tr>
<td><em>Severity 4-5 (any intent to act)</em></td>
<td>Attempts</td>
<td>OR=3.26, 95% CI=1.02-10.45, p=0.047</td>
</tr>
<tr>
<td><strong>Horwitz et al. 2015</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Ideation severity 1 to 5</em></td>
<td>Attempt</td>
<td>OR= 1.51, 95% CI= 1.24-1.84, p&lt;0.001</td>
</tr>
<tr>
<td>Study</td>
<td>Predictor Description</td>
<td>Criterion Description</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-------------------------------------------------------------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>Arias et al. 2016</td>
<td>Current ideation severity 4 or 5 (with intent to die)</td>
<td>Actual attempt or suicide 6 weeks post-ED visit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Actual, interrupted, aborted attempts, suicide or preparatory behavior</td>
</tr>
<tr>
<td>Madan et al. 2016: N=1,055 adult psych in-patients</td>
<td>Most severe ideation within 72 hours of hospitalization</td>
<td>Any suicide behavior within 6 months post hospitalization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Psychiatric hospitalization within 6 months post initial hospitalization</td>
</tr>
</tbody>
</table>

**Predictive Validity - Suicidal Behavior**

<table>
<thead>
<tr>
<th>Study</th>
<th>Predictor</th>
<th>Criterion Description</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greist et al. 2014</td>
<td>Attempt</td>
<td>Actual, interrupted or aborted attempts</td>
<td>OR = 4.57, 95% CI = 3.6-5.7, p &lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Interrupted Attempt</td>
<td>Actual, interrupted or aborted attempts</td>
<td>OR = 5.55, 95% CI = 4.4-7.0, p &lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Aborted Attempt</td>
<td>Actual, interrupted or aborted attempts</td>
<td>OR = 5.09, 95% CI = 4.1-6.4, p &lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Preparatory behavior</td>
<td>Actual, interrupted or aborted attempts</td>
<td>OR = 5.69, 95% CI = 4.3-7.5, p &lt; 0.001</td>
</tr>
<tr>
<td>Horwitz et al. 2015</td>
<td>Attempt</td>
<td>Attempt</td>
<td>OR = 4.80, 95% CI = 2.23-10.32, p &lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>NSSIB item</td>
<td>Attempt</td>
<td>OR = 3.12, 95% CI = 1.36-7.19, p &lt; 0.01</td>
</tr>
<tr>
<td>Gipson et al. 2014</td>
<td>NSSIB item</td>
<td>Return ER visit</td>
<td>OR = 1.52, 95% CI = 1.08-2.12, p &lt; .05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Attempt</td>
<td>$X^2 = 4.131$, df = 1, p = 0.04</td>
</tr>
</tbody>
</table>

See also: Conway et al 2016.
### Incremental Validity and Accuracy

<table>
<thead>
<tr>
<th>Study</th>
<th>Ideation Type</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brent et al., (2009):</td>
<td>Higher rates of suicidal (20.8% vs. 8.8%, chi squared= 9.18, df=1, p&lt;0.002) and non-suicidal self-injury (17.6% vs. 2.2%, chi squared= 23.47, df=1, p&lt;0.001) detected with systematic monitoring</td>
<td></td>
</tr>
<tr>
<td>Treatment resistant, depressed adolescent suicide attempters (N=334, ages 12-18)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Brown et al. (2015): psychiatric ER patients (N=250) | • 18% (n=23) of patients with a suicide attempt in the past week misclassified or missed by clinical assessment.  
  • Agreement with clinical assessment for suicide attempts (K=0.76, p<.001)  
  • Agreement with clinical assessment of non-suicidal self-injurious behavior (K=0.72, p<.001) |              |
| Horwitz et al. (2014): Young adult psychiatric emergency patients (N=473) | • Suicidal ideation added incremental validity to the prediction of future suicide attempts beyond the past suicide attempt, X² (1) = 7.54, p=.006 |              |
| Arias et al. (2013): 497 ER adult patients with suicidal thoughts or attempt(s) | • 41% increase in the detection of suicide attempts compared to chart reviews (59% vs. 18%, difference of 41%, 95% CI= 28-55, p<.001) |              |

See also: Conway et al 2016.

### Reliability - Suicidal Ideation

(Inter-rater and multi-method agreement)

<table>
<thead>
<tr>
<th>Study</th>
<th>Ideation Type</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brent et al. (2009)</td>
<td><em>suicidal ideation ranging from 0 to 5 (from no ideation to suicidal ideation with intent and a clear plan) monitored weekly</em></td>
<td>ICC = .09, p&lt; 0.001</td>
</tr>
<tr>
<td>Study</td>
<td>Description</td>
<td>Reliability</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Youngstrom et al. (2015)</td>
<td>Accuracy calibrated against “missing gold standard” latent class-derived ideation and behavior categories</td>
<td>$\kappa &gt; 0.7$</td>
</tr>
<tr>
<td>Gunes et al. (2015)</td>
<td>Inter-rater reliability for the most severe ideation scores in the last month and lifetime were good</td>
<td>Lifetime $\kappa = 0.91$&lt;br&gt;Recent $\kappa = 0.76$</td>
</tr>
<tr>
<td>Hesdorffer et al. (2013)</td>
<td>Agreement between the MINI, C-SSRS and eC-SSRS for lifetime suicidal ideation</td>
<td>$\kappa = 0.80, 95% \text{ CI} = 0.72-0.89$</td>
</tr>
</tbody>
</table>

**Reliability - Suicidal Behavior**

<table>
<thead>
<tr>
<th>Study</th>
<th>Description</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown et al. (2015)</td>
<td>Agreement with clinical assessment for attempts</td>
<td>$\kappa = 0.76, P &lt; .001$</td>
</tr>
<tr>
<td></td>
<td>Agreement with clinical assessment for non-suicidal self-injurious behavior</td>
<td>$\kappa = 0.72, P &lt; .001$</td>
</tr>
<tr>
<td>Youngstrom et al. (2015)</td>
<td>Accuracy of attempt: calibrated against latent class-derived categories</td>
<td>$\kappa &gt; 0.8$</td>
</tr>
<tr>
<td>Brent et al. (2009)</td>
<td>Inter-rater reliability for a rating of suicidal behavior, ranging from 0 to 5 (no behavior to multiple attempts during the assessment period) using the Columbia Classification Algorithm of Suicide Assessment</td>
<td>100% agreement</td>
</tr>
<tr>
<td>Kerr et al. (2013)</td>
<td>Inter-rater agreement for distinction among actual, aborted, interrupted attempts, preparatory acts and any other act</td>
<td>$\kappa = 0.88$</td>
</tr>
<tr>
<td>Hesdorffer et al. (2013)</td>
<td>Agreement between the MINI, C-SSRS and eC-SSRS for lifetime suicidal behavior</td>
<td>$\kappa = 0.67, 95% \text{ CI} = 0.53-0.80$</td>
</tr>
</tbody>
</table>
# The Columbia Suicide Severity Rating Scale (C-SSRS): Impact in Public Health and Diagnostic and Treatment-Monitoring Effectiveness

## Table 3: C-SSRS as Intervention and Measure of Diagnosis and Treatment

<table>
<thead>
<tr>
<th>Decrease in Suicide Rate: C-SSRS as Intervention</th>
<th>Study Details</th>
</tr>
</thead>
</table>
| **Out-Patient Mental Health**  
Esposito, 2015 | • Centerstone - the largest provider of community-based outpatient mental health care in the U.S.  
• The C-SSRS administered to every client at every service delivery point as part of a comprehensive Zero Suicide prevention program.  
• In the first 20 months post-implementation, the Tennessee facilities saw a **nearly 65% reduction in the suicide rate**, from 3.1 to 1.1 per 10,000 clients. |
| **Active Duty: US Marines**  
Seck, 2015 | • Following training of all support staff in the C-SSRS at 16 USMC installations and implementation of mandatory C-SSRS screening by the non-healthcare personnel, including legal services, suicides in the USMC **dropped by 22%**, from 45 in 2013 to 34 in 2014. |
| **States: Utah**  
US: UT Dept. of Human Services, 2015 | • **For the first time** reversed the rising suicide trend since implementing the C-SSRS as part of the comprehensive Zero Suicide program in 2015. |
| **Active Duty: US Army**  
Adam Walsh,  
CIV DODHRA DSPO (US), (2015, personal communication) | • At the end of 2-4 months of treatment for PTSD in active duty soldiers (N=1206), those with greater improvement in PTSD had **fewer suicidal ideation** symptoms on the C-SSRS. |
## References for Psychometric Evidence and Clinical Outcomes


REPRESENTATIVE PUBLICATIONS FOR C-SSRS USE:

DEMOGRAPHIC AND CLINICAL POPULATIONS, SETTINGS, TREATMENT EFFICACY AND ASSESSMENT GUIDELINES

Pediatric Populations by Age Group

**Ages 5-11**

**Ages 6-12**

**Ages 7-13**

**Ages 6-17**

**Ages 6-18**

**Ages 7-17**

**Ages 10-18**

**Ages 12-17**


Ages 7-18 (for pediatric sub-sample; paper also included studies with adults)


Ages 12-17.5


Ages 12-18


Ages 12-18


Ages 12-17


Ages 13-17


Ages 14-18

Ages 14-19


Ages 15-20

Ages 15-24

Young Adults

Ages 15-24

Ages 20-22

Medical Specialties

Neurology


**Oncology**

**Psychiatric Conditions**

**Alzheimer’s**


**Autism**

**Bipolar Depression**


**Postpartum Depression**

**Complicated Grief**
Psychosis/Schizophrenia


PTSD

Sleep

Healthcare Systems

Outpatient Settings

Outpatient Psychiatry

Juvenile Justice


**Integrated Primary Care**


**Veterans**


**In-Patient Settings/Emergency Departments**


**Medication Treatment Efficacy for Suicidal Outcomes**


Reviews of Suicide Risk Assessment Tools


Guidelines for Treatment & Assessment of Suicidal Outcomes


Linguistic and Psychometric Validation of Translations


Cross-Cultural Settings
*Latin America (Spanish)*

**Argentina**


**Australia**


**China**


**Croatia**


**Ethiopia**


**France**


**Germany**


**Hungary**


**Indonesia**

India


Korea

Spain

Sri Lanka
Columbia Suicide Severity Rating Scale Versions

C-SSRS clinical practice screener:

C-SSRS self-report: