OVERVIEW

Thank you for your interest in the Internal State Scale (ISS). This packet contains all the information necessary to begin using the ISS, including: this scoring key, a copy of the current version of the instrument (version 2), and reprints of articles summarizing the original study in 1991 and the replication and scoring revision in 2000. The ISS can be copied and used without charge, but reference in publication to the appropriate article(s) is expected. I would also like to receive a copy of any published manuscripts.

ISS version 2 has been used since 1991 in a variety of scientific studies of course and outcome in bipolar disorder. It has been used in several countries and has been translated into Spanish, French, and German.

- Spanish translator: Sheri Johnson (sjohnson@umiami.ir.miami.edu)
- French translator: Jean Michel Aubry (jaubry@worldcom.ch)
- German translator: Thomas Meyer (th.meyer@uni-teubingen.de)

The ISS was designed to provide a simple mood state self-report that could be gathered at frequent intervals and remote from clinical sites. Thus it can, for instance, be used for daily ratings by patients at home in order to track rapid cycling.

The ISS represents a substantial advance over earlier self-report mood ratings in that manic and depressive symptoms are tracked independently, rather than having the subject fill out a single forced choice manic-or-depressed bipolar scale. Thus the ISS does not presuppose that all manic or hypomanic episodes are euphoric. Rather, the ISS recognizes mixed states and depressive symptoms during manic and hypomanic episodes.

Psychometric analysis indicates that the ISS is composed of four principle components, producing four subscales. There are two major uses for the ISS subscales. First, two subscales, Activation and Well Being, are used in combination to discriminate mood state in bipolar disorder ( euthymia vs. manic/hypomania vs. mixed vs. depression). Second, three subscales can be used as symptom severity self-report scales (Activation: manic symptoms; Depression Index: depressive symptoms; Perceived Conflict: global psychopathology). These uses are complementary and fill distinct needs in the longitudinal assessment of bipolar disorder.

Three separate studies have investigated psychometric properties of the ISS (see Annotated
Reference List) and give us confidence in its utility (Bauer et al, 1991; Cooke et al, 1996; Bauer et al, 2000); one additional study indicates its limitations (Brown et al, 2000). The four subscales have high inter-item consistency. Test-retest reliability during the same mood state is acceptable, as is sensitivity to change with changing mood state. Subscales have been validated against clinician-rated symptom severity scales and against clinician-assigned mood state.

DESCRIPTION OF INSTRUMENTS

**ISSv.2:**

The ISS consists of four subscales: Activation, Well Being, Perceived Conflict, and the Depression Index. A single-item Global Bipolar Scale has been added for reference to earlier single analog line mood scales for bipolar disorder.

The ISS is in the public domain. However, the authors would like information regarding who is using it and how. Correspondence should be sent to Dr. Mark S. Bauer at the address below.

**The ChronoBook:**

The ChronoBook is a month-long booklet that consists of a sleep-wake, medication, and event log and daily ratings for the ISS. Two additional experimental ISS items ("Hyper" and "Nervous Energy") are contained in the ChronoBook. The daily mood record section of the ChronoBook is scored as daily, individual ISSs. The two experimental items are not used in scoring the ISS. Thus the ChronoBook yields ISS scores for Day 1, Day 2, etc. The sleep, medication, and events log is included for investigator or clinician use in exploring the relationship of mood state to these variables.

Copyright holders for the ChronoBook are Drs. Mark S. Bauer and Peter C. Whybrow. Request to duplicate or inquiries regarding production should be forwarded to Dr. Bauer.

SCORING GUIDELINES

The original version of the ISS contained a series of visual analogue scale (VAS) items consisting of statement followed by a 100 mm line with anchor points at 0 and 100. Our most recent study (currently submitted) indicates no loss of precision in Likert-based format.

Specifically, the 100 mm VAS has been replaced by eleven “bins” (equivalent to 0-10, 11-20, …91-100). This conversion represents a major improvement since scoring of the ISS can be fully automated using optical scanning technology. This also means that the ISS need not be duplicated by photocopy alone, but can be adapted to various op-scan forms and processes.

In Likert-based scoring, the first bin is scored as zero, the second as 10, and so on to the eleventh bin which is scored as 100.
<table>
<thead>
<tr>
<th>Item Text</th>
<th>Subscale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Today my mood is changeable.</td>
<td>Perceived Conflict</td>
</tr>
<tr>
<td>Today I feel irritable.</td>
<td>Perceived Conflict</td>
</tr>
<tr>
<td>Today I feel like a capable person.</td>
<td>Well Being</td>
</tr>
<tr>
<td>Today I feel like people are out to get me.</td>
<td>Perceived Conflict</td>
</tr>
<tr>
<td>Today I actually feel great inside.</td>
<td>Well Being</td>
</tr>
<tr>
<td>Today I feel impulsive.</td>
<td>Activation</td>
</tr>
<tr>
<td>Today I feel depressed.</td>
<td>Depression Index</td>
</tr>
<tr>
<td>Today my thoughts are going fast.</td>
<td>Activation</td>
</tr>
<tr>
<td>Today it seems like nothing will ever work out for me.</td>
<td>Depression Index</td>
</tr>
<tr>
<td>Today I feel overactive.</td>
<td>Activation</td>
</tr>
<tr>
<td>Today I feel as if the world is against me.</td>
<td>Perceived Conflict</td>
</tr>
<tr>
<td>Today I feel &quot;sped up&quot; inside.</td>
<td>Activation</td>
</tr>
<tr>
<td>Today I feel restless.</td>
<td>Activation</td>
</tr>
<tr>
<td>Today I feel argumentative.</td>
<td>Perceived Conflict</td>
</tr>
<tr>
<td>Today I feel energized.</td>
<td>Well Being</td>
</tr>
</tbody>
</table>

**ISS SUBSCALES AS DISCRIMINATORS OF MOOD EPISODES**

The Well Being subscale used in conjunction with the Activation subscale is useful in discriminating between depressed, (hypo)manic, and subsyndromal/euthymic states. In this capacity, the ISS has proven valid by discriminant function analysis, although the exact cut-off scores may vary somewhat from site to site and therefore should be standardized by each investigator.

The revised algorithm for mood state discrimination (Bauer et al, 2000) is as follows:
### Mood State Activation Subscale Score Well-Being Subscale Score

<table>
<thead>
<tr>
<th>Mood State</th>
<th>Activation Subscale Score</th>
<th>Well-Being Subscale Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Hypo)Mania</td>
<td>≥155</td>
<td>≥125</td>
</tr>
<tr>
<td>Mixed State</td>
<td>≥155</td>
<td>&lt;125</td>
</tr>
<tr>
<td>Euthymia</td>
<td>&lt;155</td>
<td>≥125</td>
</tr>
<tr>
<td>Depression</td>
<td>&lt;155</td>
<td>&lt;125</td>
</tr>
</tbody>
</table>

**ISS SUBSCALES AS INDICATORS OF SYMPTOM SEVERITY**

The Activation subscale correlates highly and specifically with clinician ratings of manic symptoms (r=0.60 vs. Young Mania Rating Scale), while the Depression Index correlates highly and specifically with clinician ratings of depressive symptoms (r=0.84 vs. Hamilton Depression Rating Scale). These are the two most useful subscales in tracking mood disorders.

The Perceived Conflict subscale correlates most highly with the Brief Psychiatric Rating Scale (r=0.56), but also correlates significantly with the Hamilton Depression and Young Mania Rating Scales. Thus it appears to serve as an index of global psychopathology. Preliminary evidence indicates that it is particularly high in patients with psychotic symptoms.
ANNOTATED REFERENCE LIST (selected references, as of January, 2007):

  • Original paper on instrument development, psychometrics of mood state discrimination and symptom severity correlation. Conducted in tertiary care academic medical center sample.

  • Example of the use of the ISS as a clinical trial outcome measure.

  • Independent replication of basic properties of ISS.

  • Illustrates integration into cognitive therapy outcome assessment for bipolar disorder in a British modality.

  • Summary and critique of ISS concept, psychometric properties, and applications.

  • Four-site, VA study replicating the mood state discrimination abilities of the ISS. Revision of algorithm to identify mixed states. Confirmation of ISS abilities in multi-site, public sector sample.

  • ISS performs less well in patients with manic or depressive symptoms due to medical factors who do not have bipolar disorder. Conducted in medical clinic of an academic medical center.

  • Example of the use of the ISS as a clinical trial outcome measure.

• Example of the use of the ISS as a clinical trial outcome measure.

  • Four-site VA study investigating quality of life and preference (utility) measures in relation to ISS scores.

  • The ISS loses no discriminating ability when converted from VAS format to likert-based scoring, which makes feasible automated, optical scanned scoring.

  • Example of the use of the ISS as a clinical trial outcome measure.

  • ISS assessment of manic and depressive symptoms in patients chronically receiving corticosteroids, which frequently induce manic and/or depressive symptoms.

  • ISS assessment in individuals with bipolar disorder complicated by comorbid alcohol dependence.

  • ISS subscale Depression Index correlation with indices of social function, similar to clinician ratings of depression.

For further information:

Mark S. Bauer, M.D.
VA Medical Center / 116R
830 Chalkstone Avenue
Providence, RI 02908
Ph: 401-273-7100 x3863
Fx: 401-457-3311
email: Mark_Bauer@brown.edu