The Assessment of Impairment with the Rating Scale of Impairment™ (RSI™): Introduction and Application

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The Mixed Blessings of Something New

The Future

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Today’s Learning Objectives

- Why evaluate impairment?
- Overview of the conceptual basis of impairment
- Define impairment
- What is the relationship between impairment and symptoms/diagnoses?
- Review the data
- Introduction to the RSI

We Are the First Congress on Defining Mental Illness (circa 1820)

- How Do We Understand, Define And Categorize Mental Illness?
How Shall We Understand, Define and Categorize Mental Illness?

• By etiology or cause?
• By emotions, behaviors and thoughts?
• By impaired function in activities of life?

What is the Goal of a Comprehensive Evaluation?

Define symptoms? Meet eligibility criteria?

Identify strengths and weaknesses? Set baselines?

Why is the assessment of impairment critical to a comprehensive evaluation?

Why is direct observation (e.g. FUBA) so critical for school based assessment?
The relationship between symptoms and functioning remains unexpectedly weak and often bidirectional.

Clinicians are faced with emerging needs to...
- demonstrate the impact psychological and psychiatric diagnoses have on children and adults
- Measure impairment when using the IDEA, DSM-5, or the ICD
- Navigate the increasing requirement to measure impairment effectively

There is an increasing need to demonstrate functional impairment as part of a diagnostic process for medical, mental health, and even educational conditions.
BACKGROUND & INTRODUCTION

Problems Of Defining Impairment

No consistent agreement on a definition of impairment

Researchers are advocating to expand the understanding of impairment in the diagnostic process BUT progress in clinical practice is slow

As interest in impairment rises, so too do the number of resources available

How can we sort through all the research?
What Do The Associations Say?

The DSM-5 heavily emphasizes the role of impairment over and above symptom presentation.

The term “functional impairment” is a concept that easily equates with disability in the World Health Organization’s International Classification of Functioning, Disability and Health.

What Does The Research Say?

- Patients who do not meet specific symptom criteria may be just as impaired and disrupted as the lives of individuals who meet various criteria.
- Many who may meet symptom count for a specific diagnosis may not be significantly impaired.
- It’s not surprising that in both the DSM-IV-TR and DSM-5 a requirement of significant impairment is noted in more than 70% of the disorders listed as a criterion for diagnosis.

Impairment can be viewed as the outcome of a risk factor such as a psychological disorder interacting with other variables manifested by a constellation of measurable behaviors.
What Does It Mean To “Be Impaired”?

Let’s Break It Down Further

- Variables within the family, community and broader culture may insulate or contribute to impairment
- Some symptoms in an algorithm model are more potent than others in predicting impairment
- At certain ages, gender may differentially affect the expression of some symptoms and the severity of functional impairment
- Impairment is also very clearly not appreciated on a linear continuum

Other Factors To Be Aware Of

- The relationship of a particular condition to levels of impairment is also not evenly distributed across a bell curve.
- Socioeconomic and minority status factors may impact the severity of impairment experienced
- Certain conditions may cause more or less impairment in certain settings
**So what is impairment?**

Impairment is the reduced ability to meet the demands of life because of a psychological, physical, or cognitive condition.

Impairment can result either from knowing what to do but not doing it for a myriad of reasons or truly not knowing what to do or how to do it.
How do we define...

Adaptive behavior? Disorder? Disability?

Symptoms vs. Impairment

Inattention vs. Difficulty completing homework

Two More Factors To Consider

Severity
- Degree
- Intensity
- Perception
- Frequency
- Suffering
- Duration

Situation
- Context
- Instance
- Set of demands
- Moment to moment experience
- Setting
How does impairment differ from adaptive behavior?

Adaptive Behavior vs. Impairment

Using utensils vs. Not using utensils to eat

Adaptive Behavior Measures vs. Impairment

Skill vs. Performance

Do you know HOW to do it? vs. Do you ACTUALLY do it?
What Is A Disorder?

- A political phenomenon
- A collection of symptoms
- A deviation from the norm
- A disease
- A group of symptoms that significantly impairs functioning
- A subjective condition
- A collection of objective signs

What Is A Disability?

- A perceived inability to perform daily functions
- Persistent
- Legislated
- Sociopolitical
- Mental, physical or emotional
- Cultural

IDEIA Defines Disability As…

A child with an intellectual disability, a hearing impairment (including deafness), a speech or language impairment, a visual impairment (including blindness), a serious emotional disturbance, an orthopedic impairment, autism, traumatic brain injury, an other health impairment, a specific learning disability, deaf-blindness, or multiple disabilities
Child with a Disability
IDEIA defines this term as follows:

• (a) General. (1) Child with a disability means a child evaluated in accordance with §§300.304 through 300.311 as having an intellectual disability, a hearing impairment (including deafness), a speech or language impairment, a visual impairment (including blindness), a serious emotional disturbance (referred to in this part as “emotional disturbance”), an orthopedic impairment, autism, traumatic brain injury, an other health impairment, a specific learning disability, deaf-blindness, or multiple disabilities, and who, by reason thereof, needs special education and related services.

• (2)(i) Subject to paragraph (a)(2)(ii) of this section, if it is determined, through an appropriate evaluation under §§300.304 through 300.311, that a child has one of the disabilities identified in paragraph (a)(1) of this section, but only needs a related service and not special education, the child is not a child with a disability under this part.

Americans With Disabilities Act

January 05, 2012 ADA Regulations: What is a Mental Impairment?
How can you be sure you’re meeting ADA regulations for workers with mental conditions? Medically speaking, the term “mental illness” describes a plethora of mental and emotional disorders ranging from mild anxiety to more serious conditions that significantly interfere with major life activities such as learning, working, and simply communicating with others. Legally speaking, “mental illness” isn’t quite as easy to define, yet under the ADA, employers are expected to reasonably accommodate employees who fall into this ambiguous category.

Vocational Impairment

The individual has a significant vocational impairment; that is, a significant impairment of the ability to prepare for, obtain, or keep employment in an occupation consistent with his or her abilities, aptitudes, and interests, considering the factors described in §21.50 and paragraph (3) of this section.
The DSM-5 not only did not change this process but completely omitted any organized means of evaluating impairment!

Global Assessment Of Functioning

- Despite research suggesting that the GAF was valid and reliable (Pedersen and Karanuru, 2012), it was dropped from the DSM-5 reportedly for several reasons, including a lack of conceptual clarity and suggestions of questionable psychometrics (Canino, Fisher, Alegria and Bird, 2013).
- Instead, the authors of the DSM-5 suggest that the World Health Organization Disability Assessment Schedule (WHODAS) be included in the DSM-5 “for further study” (pg. 16).
There is a valid and reliable way to assess Impairment.

Key Features Of The RSI

- Fast completion time
- Age-appropriate items
- Assess youth ages 5 to 18 years
- Large representative normative sample
- Assess impairment clearly regardless of the diagnosis

Key Features Of The RSI

- Available in Spanish
- Monitor progress across time
- Satisfies the impairment criteria of the DSM-5
- Multiple raters for a more accurate assessment
- Assist in forming intervention and treatment planning
- Aligned with WHO’s domains of functioning found in ICF
Uses For The RSI

Rating Scale of Impairment (RSI) Scores:

- RSI (5-12 Years)
  - Parent Form: 41 items
  - Teacher Form: 29 items
  - Total Score

- RSI (13-18 Years)
  - Parent Form: 49 items
  - Teacher Form: 29 items
  - Total Score

RSI Scales:
- School
- Social
- Mobility
- Domains
- Family

Self-care

Relationship Between The RSI And Other Measures
Relationship Between The RSI And Other Impairment Measures

- RSI and the Barkley Functional Impairment Scale (BFIS–CA)
  - Child Sample corrected $r = .55$ to .67
  - Youth Sample corrected $r = .63$ to .71
- RSI and the Children's Global Assessment Scale (CGAS)
  - Corrected $r = -.34$ to -.51

These data support the conclusion that the RSI provides unique information not revealed through other measures.

Directions On The RSI
RSI Structure: Scales

School/Work
Mobility
Family
Social
Domestic
Self-Care

Standardization, Reliability & Validity

Standardization Sample

- Data collection took place from September 2012 to August 2014
- Data was collected in all 50 states
- Over 8,000 ratings were completed across the 4 RSI forms

<table>
<thead>
<tr>
<th>Parent</th>
<th>Teacher</th>
<th>Parent</th>
<th>Teacher</th>
<th>Narrative Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>100</td>
<td>600</td>
<td>600</td>
<td>2,800</td>
</tr>
</tbody>
</table>
Excellent Psychometric Properties

Internal Consistency

<table>
<thead>
<tr>
<th>RSI Scale</th>
<th>Number of Items</th>
<th>Normative Sample</th>
<th>Clinical Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>School/Work</td>
<td>10</td>
<td>.90 - .94</td>
<td>.90 - .93</td>
</tr>
<tr>
<td>Social</td>
<td>10</td>
<td>.86 - .89</td>
<td>.87 - .92</td>
</tr>
<tr>
<td>Mobility</td>
<td>9</td>
<td>.79 - .81</td>
<td>.80 - .90</td>
</tr>
<tr>
<td>Domestic</td>
<td>7</td>
<td>.85</td>
<td>.85 - .88</td>
</tr>
<tr>
<td>Family</td>
<td>6</td>
<td>75</td>
<td>.79 - .86</td>
</tr>
<tr>
<td>Self-Care</td>
<td>8</td>
<td>.75</td>
<td>.81</td>
</tr>
<tr>
<td>Total Score</td>
<td>29-49</td>
<td>.86 - .95</td>
<td>.84 - .94</td>
</tr>
</tbody>
</table>

Test-Retest Reliability

Assessed over a 2- to 4-week interval and within a general population sample

Total Score corrected $r = .89$ to $.96$, RSI Scales corrected $r = .85$ to $.97$
### Stability

84% to 99.3% of the difference between Time 1 and Time 2 fell with in +/- 10 T-score points.

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### Rater Consistency

Looked at agreement between 2 parents or 2 teachers rating the same child.

**Parent Raters:**
- RSI Scales corrected r = .65 to .87
- RSI Total Score corrected r = .77

**Teacher Raters:**
- RSI Scales corrected r = .56 to .59
- RSI Total Score corrected r = .77

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### Content Validity

<table>
<thead>
<tr>
<th>RSI Scale</th>
<th>RSI Definition</th>
<th>Example of Item Content</th>
<th>ICF Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>School/Work</td>
<td>Reflects impairment in acquiring or applying knowledge at school and/or work.</td>
<td>had trouble completing work?</td>
<td>Education</td>
</tr>
<tr>
<td>Social</td>
<td>Indicates impairment in interacting and communicating with others.</td>
<td>asked for help when needed?</td>
<td>Communication</td>
</tr>
<tr>
<td>Mobility</td>
<td>Indicates impairment in physical mobility, such as running and kneeling.</td>
<td>had difficulty running?</td>
<td>Mobility</td>
</tr>
<tr>
<td>Domestic</td>
<td>Reflects impairment in the ability to complete house and help around the house.</td>
<td>left dirty clothes on the floor?</td>
<td>Domestic</td>
</tr>
<tr>
<td>Family</td>
<td>Indicates impairment in interacting with family.</td>
<td>had fun with his/her family?</td>
<td>Interpersonal interactions &amp; Relationships</td>
</tr>
<tr>
<td>Self-Care</td>
<td>Indicates impairment in the ability to care for oneself, such as feeding, dressing, and hygiene.</td>
<td>had difficulty feeding/hygiene yourself?</td>
<td>Self-Care</td>
</tr>
</tbody>
</table>
Criterion-Related Validity

Will look at differences between mean score differences by clinical groups

This includes the following areas:
- Primary diagnosis
- Number of diagnoses
Mean T-scores By General Population And Number Of Diagnoses: RSI (5–12) Parent Form

Mean T-scores By General Population And Number Of Diagnoses: RSI (5–12) Teacher Form

Mean T-scores By General Population And Number Of Diagnoses: RSI (13–18) Parent Form
Mean T-scores By General Population And Number Of Diagnoses: RSI (13–18) Teacher Form

Administration, Scoring, & Interpretation
MHS Online Assessment Center 3/3

Features of the RSI Reports

Easy to Interpret Reports
Interpretive Reports

Comparative Reports

Progress Monitoring & Treatment Effectiveness Report
RSI Interpretation

<table>
<thead>
<tr>
<th>T-score</th>
<th>Percentile Ranks</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;60</td>
<td>1-82</td>
<td>No Impairment</td>
</tr>
<tr>
<td>60-64</td>
<td>84-92</td>
<td>Mild Impairment</td>
</tr>
<tr>
<td>65-69</td>
<td>93-97</td>
<td>Moderate Impairment</td>
</tr>
<tr>
<td>≥ 70</td>
<td>98-99</td>
<td>Considerable Impairment</td>
</tr>
</tbody>
</table>

- Determine Statistically Significant
- Evaluate Measuring Trends Over Time
- Compare Results Across Raters
- Compare Results Over Time
Case Study: Joey

Joey
- 13 years old
- History of ADHD
- Described as extremely literal
- Misses social cues
- Socially isolated
- Referred to the school psychologist

Joey: Assessment Plan
- Interviews with Joey’s mother
- Complete the RSI and behavior checklists
- Administer neurological, intellectual, and achievement tests
Results of the Interview

• Joey’s mother has not been satisfied with the effect of medical and educational intervention
• Joey appears to be advanced in some academic areas, but very behind in others
• Joey is passive and avoids social interactions
• At home, he demonstrates poor hygiene
• Refuses to complete household chores
• Joey displays disruptive behavior

Assessment Results

• Concerns in both home and school settings for emotional distress, social impairment, academic challenges, inattention, depression, and anxiety
• Achievement scores demonstrated average intellect with problems noted in Processing Speed, Planning, and Attention
• When assessed for reading, math, and written language, Joey was placed several grades below his current placement.

Results of the Parent RSI

<table>
<thead>
<tr>
<th>Scale</th>
<th>Raw Score</th>
<th>T-score</th>
<th>90% Confidence Interval</th>
<th>Percentile Rank</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>School/Work</td>
<td>46</td>
<td>85</td>
<td>77 to 86</td>
<td>94</td>
<td>Considerable impairment</td>
</tr>
<tr>
<td>Social</td>
<td>79</td>
<td>79</td>
<td>68 to 88</td>
<td>94</td>
<td>Considerable impairment</td>
</tr>
<tr>
<td>Mobility</td>
<td>2</td>
<td>57</td>
<td>42 to 59</td>
<td>88</td>
<td>No Impairment</td>
</tr>
<tr>
<td>Domains</td>
<td>58</td>
<td>79</td>
<td>68 to 85</td>
<td>99</td>
<td>Considerable impairment</td>
</tr>
<tr>
<td>Family</td>
<td>13</td>
<td>59</td>
<td>48 to 61</td>
<td>99</td>
<td>Mild Impairment</td>
</tr>
<tr>
<td>Self-Care</td>
<td>24</td>
<td>85</td>
<td>68 to 85</td>
<td>99</td>
<td>Considerable impairment</td>
</tr>
<tr>
<td>Total Score</td>
<td>638</td>
<td>81</td>
<td>76 to 81</td>
<td>97</td>
<td>Considerable impairment</td>
</tr>
</tbody>
</table>
Treatment Plan for Joey

Areas of impairment as noted by Joey's Parent

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social skills</td>
<td>Help with peer relationships</td>
</tr>
<tr>
<td>Communication</td>
<td>Improve verbal skills</td>
</tr>
<tr>
<td>Motor Skills</td>
<td>Increase fine and gross motor skill</td>
</tr>
<tr>
<td>Visual impairments</td>
<td>Address visual processing issues</td>
</tr>
</tbody>
</table>

Intervention Planning for Joey

• Adjustments to medication dosage and administration time
• Parents worked with a behavioral consultant
  • Implemented a multi-level response cost behavioral program
• Revisions to Joe's IEP
• School psychologist worked with Joey in a social skills group

Joey's Treatment Progress

<table>
<thead>
<tr>
<th>Week</th>
<th>Administered</th>
<th>Administered 3</th>
<th>100% Goal Reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>B</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>C</td>
<td>D</td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td>A</td>
<td>B</td>
<td>Yes</td>
</tr>
<tr>
<td>4</td>
<td>C</td>
<td>D</td>
<td>No</td>
</tr>
<tr>
<td>5</td>
<td>A</td>
<td>B</td>
<td>Yes</td>
</tr>
<tr>
<td>6</td>
<td>C</td>
<td>D</td>
<td>No</td>
</tr>
<tr>
<td>7</td>
<td>A</td>
<td>B</td>
<td>Yes</td>
</tr>
<tr>
<td>8</td>
<td>C</td>
<td>D</td>
<td>No</td>
</tr>
</tbody>
</table>
Case Study: Megan

Megan

- 11 years old
- History of ASD, OCD, ADHD, and Anxiety disorders
- Treated with multiple psychiatric medications
- Impairments in the home and school settings
Megan: Assessment Plan

- Interviews with Megan’s parents and her teacher
- Complete the RSI and behavior checklists
- Administer neurological, intellectual, and achievement tests

Results of the Parent Interview

- Megan is the second of four children
- Megan was a difficult child.
- She receives special education service
- She has difficulty concentrating and following instructions, is often very disorganized, and loses her belongings.
- She is also very uncooperative at home
- Megan displays a range of disruptive and non-disruptive behaviors

Results of the Teacher Interview

- Megan’s teachers have also noted a number of areas of impairment
Assessment Results

- Megan scored lower on the working memory domain of the WISC-IV and Planning and Successive Scales of the CAS2.
- Parent and teacher reports for behavior characteristic of executive functioning assessed with the Comprehensive Executive Function Inventory (CEFI; Naglieri & Goldstein, 2013) noted symptoms as well, particularly with behaviors related to attention, organization, planning, and self-monitoring.

Results of the RSI

Treatment Plan for Megan

Areas of impairment as noted by Megan’s parents and teachers
Intervention Planning for Megan

- Megan qualified for an individual aid at school
- Megan’s family referred for in-home behavioral therapy
- Megan began working with a cognitive therapist on a weekly basis
- A response cost point system was implemented at school
- No changes were made to Megan’s medication regimen

Megan’s Treatment Progress: Parent Report

Megan’s Treatment Progress: Teacher Report
Conclusions

- Symptoms, diagnoses, tests and classifications alone do not provide a complete measure of functional impairment.
- Impairment can be defined and measured in children.
- Functional impairment can be accurately measured with the Rating Scale of Impairment (RSI).
- The RSI offers a valid, reliable, comprehensive measure of daily functional challenges within a factor analyzed framework built on the WHODAS categories.
- Assessment of and treatment monitoring of impairment offers an important advance in assessment.