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

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RSI RATING SCALE OF IMPAIRMENT

Sam Goldstein, Ph.D. & Jack A. Naglieri, Ph.D.

TECHNICAL MANUAL

The Mixed Blessings of Something New

The Future
NEXT EXIT →

The Mixed Blessings of Something New

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The Mixed Blessings of Something New

Today's Learning Objectives

Why evaluate impairment? → Overview of the conceptual bias of impairment → Define Impairment → What is the relationship between impairment and symptoms/ diagnoses → Review the data → Introduction to the RSI
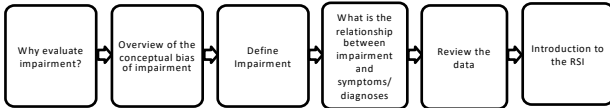
We Are the First Congress on Defining Mental Illness (circa 1820)

How Do We Understand, Define And Categorize Mental Illness?

How Shall We Understand, Define, Categorize and Evaluate Treatment Response in Mental Illness?

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

Define symptoms?   Meet eligibility criteria?

What is the Goal of a Comprehensive Evaluation?

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 IDEIA, 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

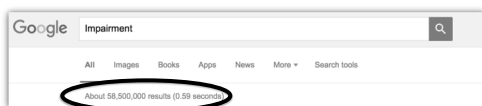## Problems Of Defining Impairment

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

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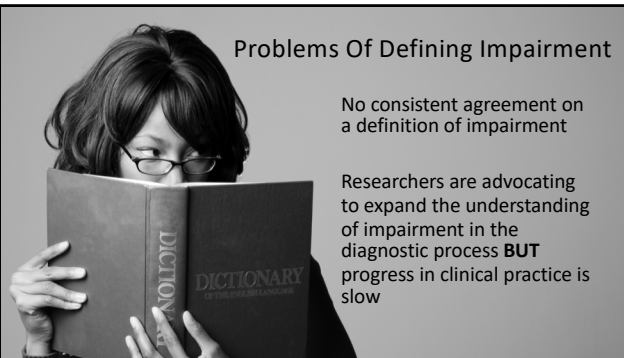
As interest in impairment rises, so too do the number of resources available

Google   Impairment

All   Images   Books   Apps   News   More ▾   Search tools

About 58,500,000 results (0.59 seconds)

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
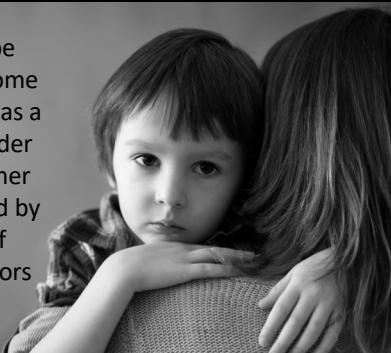
What Does It Mean To "Be Impaired"?

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.

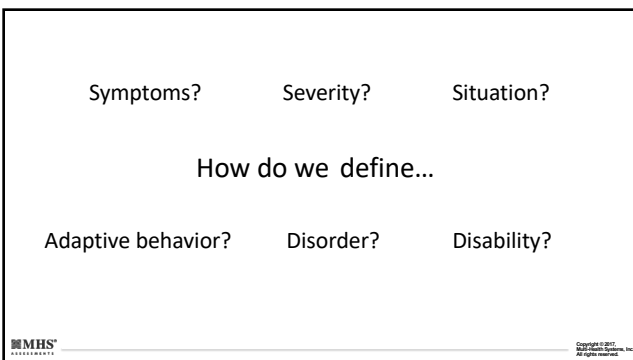Socioeconomic and minority status factors may impact the severity of impairment experienced

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

Symptoms?   Severity?   Situation?

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

vs.

Using utensils   Not using utensils to eat

Adaptive Behavior Measures vs. Impairment

Skill   **vs.**   **Performance**

Do you know HOW to do it?

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
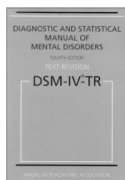- Sociopolitical
- Mental, physical or emotional
- Cultural

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

Assessing Impairment In The Eligibility Process

DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS
FOURTH EDITION
DSM-IV-TR

Global Assessment of Functioning (GAF) Scale

DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS
FIFTH EDITION
DSM-5
AMERICAN PSYCHIATRIC ASSOCIATION

Global Assessment of Functioning (GAF) Scale
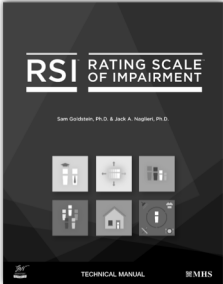
WHODAS II
DISABILITY ASSESSMENT SCHEDULE
(Currently only for Adults)

IDEA
Individuals with Disabilities Act
(Revised as IDEIA in 2004)

There is a alid 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

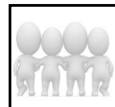Assess impairment clearly **regardless of the diagnosis**

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) Forms

RSI (5-12 Years)		RSI (13-18 Years)	
Parent Form	Teacher Form	Parent Form	Teacher form
41 items	29 items	49 items	29 items
Total Score		Total Score	

RSI Scales	**RSI Scales**	**RSI Scales**	**RSI Scales**
School	School	School/Work	School
Social	Social	Social	Social
Mobility	Mobility	Mobility	Mobility
Domestic		Domestic	
Family		Family	
		Self-care	

Relationship Between The RSI And Other Measures

RSI Total Score

Adaptive Behavior		Psychopathology	
-.54	Adaptive Behavior Assessment System–II	.26	Conners CBRS — Content Scales
		.29	Conners CBRS — Symptom Scales

Social-Emotional Competency		Ability & Achievement	
-.71	Devereux Student Strength Assessment	-.05	Wechsler Intelligence Scale for Children–IV

Executive Function			
-.78	Comprehensive Executive Function Inventory	-.06	Woodcock Johnson III Tests of Achievement
		-.03	Cognitive Assessment System

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

RSI Total Score		
Other Impairment Scales		
.59 Barkley Functional Impairment Scale	-.41	Children's Global Assessment Scale

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Directions On The RSI

Child's Name/ID: Page 2

INSTRUCTIONS: Read each statement that follows the phrase, *"During the past four weeks, how often has your child...,"* then circle the letter under the word that tells how often you saw the behavior. Read each question carefully, then mark how often you saw the behavior in the *past four weeks*. Answer every question without skipping any. If you want to change your answer, put an X through it and circle your new choice. Be sure to answer every question.

During the past four weeks, how often has your child...   Never Rarely Sometimes Often Very Often Always

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RSI Structure: Scales

School/Work   Mobility   Family
Social   Domestic   Self-Care

STANDARDIZATION, RELIABILITY & VALIDITY
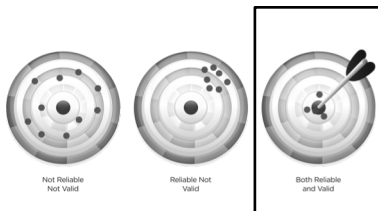
Standardization Sample

- 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

Parent RSI 5-12 Years Form	Teacher RSI 5-12 Years Form	Parent RSI 13-18 Years Form	Teacher RSI 13-18 Years Form	Normative Sample
800	800	600	600	**2,800**

Excellent Psychometric Properties

Not Reliable Not Valid   Reliable Not Valid   Both Reliable and Valid

Internal Consistency

RSI Scale	Number of Items	Normative Sample	Clinical Sample
School/Work	10	.90 - .94	.90 - .93
Social	10	.86 -.89	.87 - .92
Mobility	9	.79 - .91	.85 - .92
Domestic	7	.85	.85 - .88
Family	5	.76 - .82	.78 - .86
Self-Care	8	.75	.83
Total Score	29-49	.94-.95	.94 - .96

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

Inter-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 = .87

Teacher Raters
– RSI Scales corrected r = .56 to .59
– RSI Total Score corrected r = .77

Content Validity

RSI Scale	RSI Definition	Example of Item Content	ICF Definition
School/Work	Reflects impairment in acquiring or applying knowledge at school and/or work.	had trouble completing work?	Education
Social	Indicates impairment when interacting and communicating with others.	asked for help when needed?	Communication
Mobility	Describes impairment when physically moving, such as running and kneeling.	had difficulty running?	Mobility
Domestic	Reflects impairment in the ability to complete chores and help around the house.	left dirty clothes on the floor?	Domestic
Family	Indicates impairment when interacting with family.	had fun with his/her family?	Interpersonal Interactions & Relationships
Self-Care	Describes impairment in the ability to care for oneself, such as feeding, dressing, and hygiene.	had difficulty feeding himself/ herself?	Self-Care

Criterion-Related Validity

Will look at differences between mean score differences by clinical groups

This includes the following areas:
– Primary diagnosis
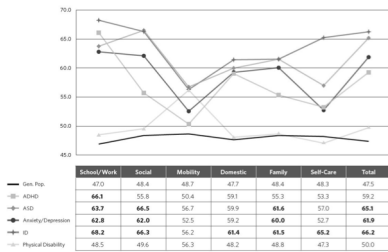– Number of diagnoses

T-scores By General Population And Clinical Groups: RSI Parent Forms

	School/Work	Social	Mobility	Domestic	Family	Self-Care	Total
Gen. Pop.	47.0	48.4	48.7	47.7	48.4	48.3	47.5
ADHD	66.1	55.8	50.4	59.1	55.3	53.3	59.2
ASD	63.7	66.5	56.7	59.9	61.6	57.0	65.3
Anxiety/Depression	62.8	62.0	52.5	59.2	60.0	52.7	61.9
ID	68.2	66.3	56.2	61.4	61.5	65.2	66.2
Physical Disability	48.5	49.6	56.3	48.2	48.8	47.3	50.0

T-scores By General Population And Clinical Groups: RSI Teacher Forms
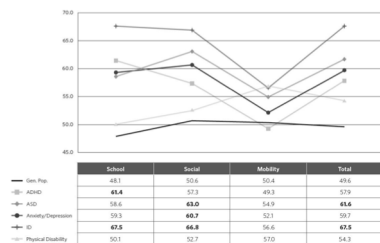
	School	Social	Mobility	Total
Gen. Pop.	48.1	50.6	50.4	49.6
ADHD	61.4	57.3	49.3	57.9
ASD	58.6	63.0	54.9	61.6
Anxiety/Depression	59.3	60.7	52.1	59.7
ID	67.5	66.8	56.6	67.5
Physical Disability	50.1	52.7	57.0	54.3

Mean T-scores By General Population And Number Of Diagnoses: RSI (5–12) Parent Form
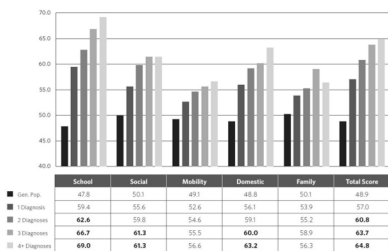
	School	Social	Mobility	Domestic	Family	Total Score
Gen. Pop.	47.8	50.1	49.1	48.8	50.1	48.9
1 Diagnosis	59.4	55.6	52.6	56.1	53.9	57.0
2 Diagnoses	62.6	59.8	54.6	59.1	55.2	60.8
3 Diagnoses	66.7	61.3	55.5	60.0	58.9	63.7
4+ Diagnoses	69.0	61.3	56.6	63.2	56.3	64.8

Mean T-scores By General Population And Number Of Diagnoses: RSI (5–12) Teacher Form
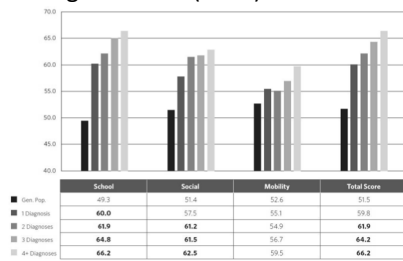
	School	Social	Mobility	Total Score
Gen. Pop.	49.3	51.4	52.6	51.5
1 Diagnosis	60.0	57.5	55.1	59.8
2 Diagnoses	61.9	61.2	54.9	61.9
3 Diagnoses	64.8	61.5	56.7	64.2
4+ Diagnoses	66.2	62.5	59.5	66.2

Mean T-scores By General Population And Number Of Diagnoses: RSI (13–18) Parent Form
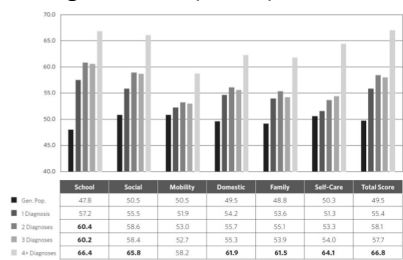
	School	Social	Mobility	Domestic	Family	Self-Care	Total Score
Gen. Pop.	47.8	50.5	50.5	49.5	48.8	50.3	49.5
1 Diagnosis	57.2	55.5	51.9	54.2	53.6	51.3	55.4
2 Diagnoses	60.4	58.6	53.0	55.7	55.1	53.3	58.1
3 Diagnoses	60.2	58.4	52.7	55.3	53.9	54.0	57.7
4+ Diagnoses	66.4	65.8	58.2	61.9	61.5	64.1	66.8

Mean T-scores By General Population And Number Of Diagnoses: RSI (13–18) Teacher Form
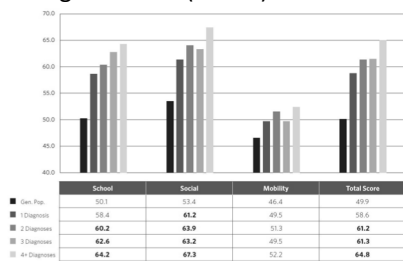
	School	Social	Mobility	Total Score
Gen. Pop.	50.1	53.4	46.4	49.9
1 Diagnosis	58.4	61.2	49.5	58.6
2 Diagnoses	60.2	63.9	51.3	61.2
3 Diagnoses	62.6	63.2	49.5	61.3
4+ Diagnoses	64.2	67.3	52.2	64.8

CASE STUDY: JOEY

Joey

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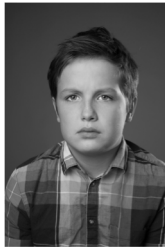
Joey: Assessment Plan

- 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.
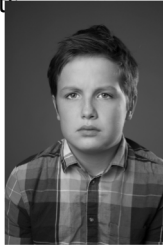
Results of the Parent RSI

Scale	Raw Score	T-score	90% Confidence Interval	Percentile Rank	Classification
School/Work	42	85	77 to 86	99	Considerable Impairment
Social	37	79	69 to 81	99	Considerable Impairment
Mobility	2	47	42 to 53	38	No Impairment
Domestic	33	79	69 to 81	99	Considerable Impairment
Family	13	63	54 to 67	90	Mild Impairment
Self-Care	24	85	68 to 85	99	Considerable Impairment
Total Score	438	81	76 to 83	99	Considerable Impairment

Treatment Plan for Joey

Areas of impairment as noted by Joey's Parent

School/Work	
• losing organized • learning at school or work • finding solutions to problems • remembering to do things • remembering where he put things	• completing work • concentrating • preparing school or work • following instructions

Social	
• participating in group events • talking to friends • asking for help • socializing • having fun with others	• communicating his needs • having friends at school or work • talking in a group of people • working well with others

Mobility	
No elevated items	

Domestic	
• helping around the house • cleaning up after himself • putting clean clothes away • completing chores • picking up dirty clothes	• cleaning his room • putting things away in the house

Family	
• having fun with family • participating in family activities	

Self-Care	
• washing or bathing • cleaning himself when dirty • wearing clean clothes • brushing his teeth • feeding himself	• getting dressed • getting undressed • washing his hands after using the bathroom

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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
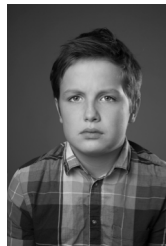
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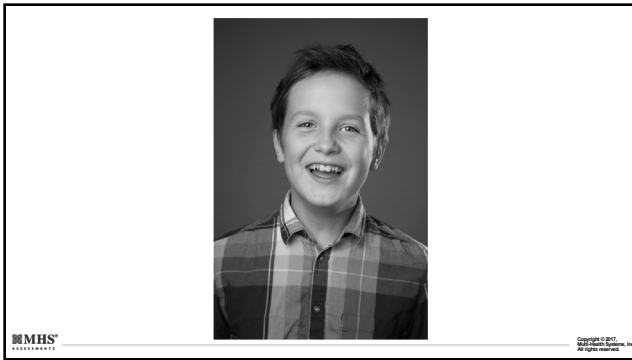## Joey's Treatment Progress

Scale		Administration 1	Administration 2	Significant Change Across Administrations
School/Work	T-score	85	72	Decrease
	Classification	Considerable Impairment	Considerable Impairment	
Social	T-score	79	61	Decrease
	Classification	Considerable Impairment	Mild Impairment	
Mobility	T-score	47	47	No Change
	Classification	No Impairment	No Impairment	
Domestic	T-score	79	62	Decrease
	Classification	Considerable Impairment	Mild Impairment	
Family	T-score	63	50	Decrease
	Classification	Mild Impairment	No Impairment	
Self-Care	T-score	85	75	No Change
	Classification	Considerable Impairment	Considerable Impairment	

Total Score

Scale		Administration 1	Administration 2	Significant Change Across Administrations
Total Score	T-score	81	66	Decrease
	Classification	Considerable Impairment	Moderate Impairment	

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

RSI Scales

Scale		Parent	Teacher	Significant Difference Between Raters
School	T-score	85	71	Parent > Teacher
	Classification	Considerable Impairment	Considerable Impairment	
Social	T-score	68	62	No significant difference
	Classification	Moderate Impairment	Mild Impairment	
Mobility	T-score	45	49	No significant difference
	Classification	No Impairment	No Impairment	
Domestic	T-score	74	Domestic scale does not appear on the Teacher Form	No comparison possible
	Classification	Considerable Impairment		
Family	T-score	66	Family scale does not appear on the Teacher Form	No comparison possible
	Classification	Moderate Impairment		

Total Score

Scale		Parent	Teacher	Significant Difference Between Raters
School	T-score	73	64	No comparison possible
	Classification	Considerable Impairment	Mild Impairment	

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

RSI Scales

Scale		Administration 1	Administration 2	Significant Change Across Administrations
School	T-score	85	58	Decrease
	Classification	Considerable Impairment	No Impairment	
Social	T-score	68	58	Decrease
	Classification	Moderate Impairment	No Impairment	
Mobility	T-score	45	45	No Change
	Classification	No Impairment	No Impairment	
Domestic	T-score	74	72	No Change
	Classification	Considerable Impairment	Considerable Impairment	
Family	T-score	66	66	No Change
	Classification	Moderate Impairment	Moderate Impairment	

Total Score

Scale		Administration 1	Administration 2	Significant Change Across Administrations
Total Score	T-score	73	63	Decrease
	Classification	Considerable Impairment	Mild Impairment	

Megan's Treatment Progress: Teacher Report

RSI Scales

Scale		Administration 1	Administration 2	Significant Change Across Administrations
School	T-score	71	58	Decrease
	Classification	Considerable Impairment	No Impairment	
Social	T-score	62	58	No Change
	Classification	Mild Impairment	No Impairment	
Mobility	T-score	49	44	No Change
	Classification	No Impairment	No Impairment	

Total Score

Scale		Administration 1	Administration 2	Significant Change Across Administrations
Total Score	T-score	64	54	Decrease
	Classification	Mild Impairment	No Impairment	
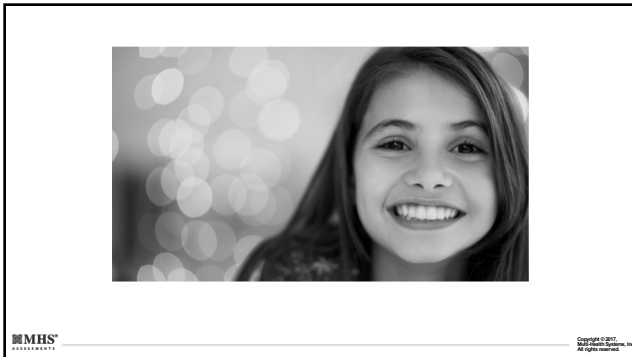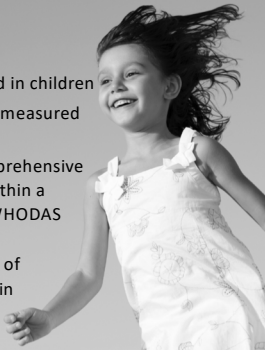
Conclusions

- Impairment can be defined and measured in children
- Functional impairment can be accurately measured with the Rating Scale of Impairment
- The RSI offers the first 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

Questions?

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ⓕ @doctorsamgoldstein