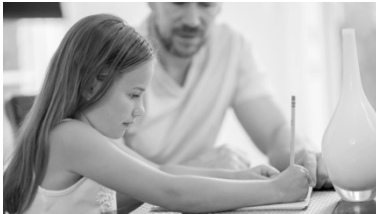# The Assessment of Impairment in the IDEIA and DSM-5 Era

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GEORGIA ASSOCIATION
OF SCHOOL PSYCHOLOGISTS
Caring for Children in Georgia Since 1970!

Why is direct observation (e.g. FuBA) so critical for school based assessment?

The Assessment of Impairment in DSM-5 Era

Goals for Today

- Review the conceptual basis of impairment
- Define Impairment
- Discuss the relationship of Impairment to symptoms and diagnoses
- Review data from the largest epidemiologic sample assessing impairment in children
- Review the Rating Scale of Impairment as a means of assessing impairment in a comprehensive evaluation and as a treatment monitoring tool

Background & Introduction

Questions in Need of Answers to Define Impairment

• There is still no consistent agreement on even the simplest nomenclature issues about impairment (Rapee, et al., 2012)

• As researchers advocate for an expanding appreciation and understanding of impairment in the diagnostic process, progress in clinical practice is slow (Rapee, et al., 2012)

Questions in Need of Answers to Define Impairment

Example:

The DSM-5 Impairment and Disability Assessment Study Group recommended that impairment be viewed as a consequence of a disorder rather than a requisite feature of the disorder itself and that clinical criteria alone should not be used to determine thresholds for diagnosis (DSM-5 Impairment Disability Assessment Group, 2011)

What Does it Mean "to be Impaired"?

- To be impaired means to be unable to perform whatever daily activities are required
- But exactly how does impairment relate to symptom count and severity of a specific condition?
- How do symptoms and impairments contribute to disability, handicap and deficits in adaptive functioning?
- What variables within the family, community and broader culture may insulate or contribute to impairment
- Is impairment an end point or a stop along the way to recovery?

What Does it Mean "to be Impaired"?

- Some symptoms in an algorithm model are more potent than others in predicting impairment (Vera, et al., 2010)
- 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 (Baillargeon and Bernier, 2010)

What Does it Mean "to be Impaired"?

- The relationship of a particular condition to levels of impairment is also not evenly distributed across a bell curve
- Youth of minority status or parents with limited socioeconomic status may experience much greater severity of impairment despite symptoms that are equal to youth in other social classes (Baillargeon and Bernier, 2010)
- Complicating matters further, is the fact that certain conditions may cause more or less impairment in certain settings. This suggests that context and rater may play a significant role in severity of impairment reported (Watabe, et al., 2014)

The term impairment is used differently by medical, mental health and educational professionals

Without a clear definition, the task of quantifying a method for evaluating impairment is difficult and the application of this important construct in clinical practice further delayed

An exhaustive review of the literature demonstrates that the relationship between symptoms and functioning remains unexpectedly weak and often bidirectional (McKnight and Kashdan, 2009)

Need

- Clinicians are required to demonstrate the impact psychological and psychiatric diagnoses have on children and adults

- There is a clear need to measure "impairment" when using the Diagnostic and Statistical Manual of the American Psychiatric Association (DSM) or the International Classification of Diseases (ICD) as a guide to diagnosis

- The need to measure impairment is increasing

Given trends demonstrating an increased incidence of mental health and physical symptoms across the population (Castle, Aubert, Verbrugge, Khalid, & Epstein, 2007), it is not unexpected that there is an increasing need to demonstrate functional impairment as part of a diagnostic process for medical, mental health and even educational conditions

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Understanding impairment is by far the most important and greatest challenge facing medical, educational, and mental health care providers today
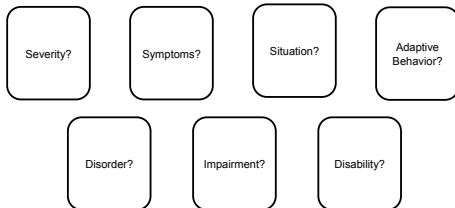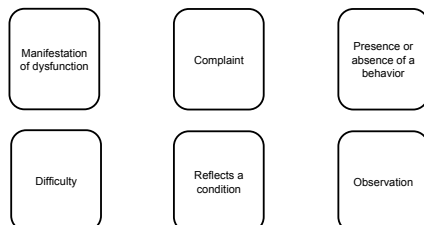
What is the Goal of Assessment?

- Identify and define symptoms?
- Identify and define strengths and weaknesses?
- Appreciate the relationship of a set of symptoms to a unitary condition?
- Meet eligibility criteria?
- Define limits of functional impairment to set a baseline for intervention?

How Shall We Define:

Severity?

Symptoms?

Situation?

Adaptive Behavior?

Disorder?

Impairment?

Disability?

Symptoms

Manifestation of dysfunction

Complaint

Presence or absence of a behavior

Difficulty

Reflects a condition

Observation

Symptoms vs. Impairment

Impairment is not the same as symptoms

• Symptoms are physical, cognitive or behavioral **manifestations** of a disorder

• Impairments are the functional **consequences of these symptoms**

Inattention   Difficulty completing homework

(Barkley, 2012)

Symptoms vs. Impairment

• Impairment can exist absent of formal diagnosis. (Balazs et al., 2013; Wille et al., 2008)

• In one study 14.2% of a sample of children were significantly impaired without a formal diagnosis. (Angold et al., 1999)
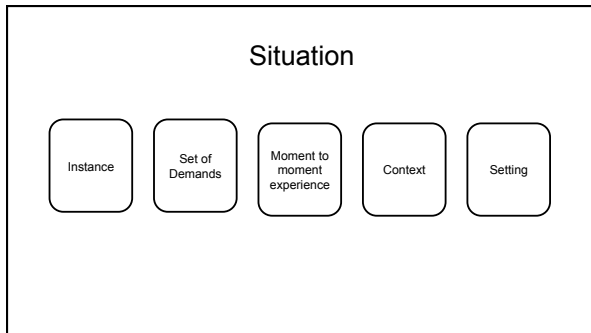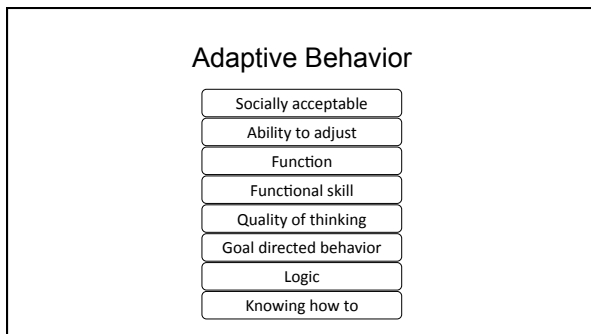

Severity

| Degree |
| Perception |
| Suffering |
| Intensity |
| Duration |
| Frequency |

Situation

| Instance | Set of Demands | Moment to moment experience | Context | Setting |

Adaptive Behavior

Socially acceptable
Ability to adjust
Function
Functional skill
Quality of thinking
Goal directed behavior
Logic
Knowing how to

Impairment vs. Adaptive Behaviour

A skill deficit occurs when a person does not know how to perform an everyday task, whereas a deficit in performance occurs when an individual has acquired a skill, yet does not seem to use it when needed.

(Ditterline & Oakland, 2009)

Impairment vs. Adaptive Behaviour

Thus, while measures of adaptive behavior emphasize the presence of adaptive skills in daily functioning, measures of functional impairment tend to emphasize the outcome of a behavior or the performance of an individual rather than the presence or absence of the skill.

(Ditterline & Oakland (2009); Dumas et al. (2010); Gleason & Coster (2012))
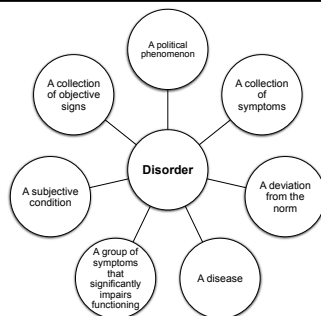

Impairment vs. Adaptive Behaviour

• Adaptive behavior is a collection of social, practical and conceptual knowledge needed for daily functioning

• Main difference is between **knowledge** and **performance**

• Adaptive behavior is often linked with intellectual disability

• RSI validity studies find no relation with intellectual ability

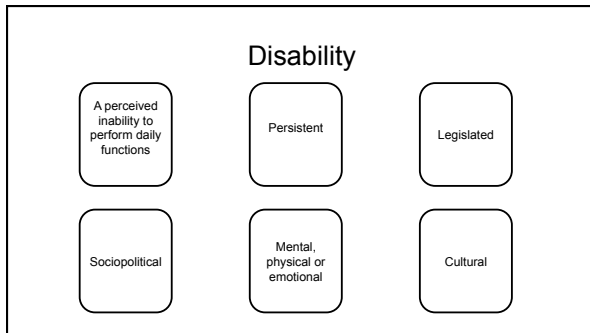Holding a fork   Not using fork to eat

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A political phenomenon

A collection of objective signs

A collection of symptoms

Disorder

A subjective condition

A deviation from the norm

A group of symptoms that significantly impairs functioning

A disease

Disability

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

Defining Impairment

- Webster's New College Dictionary (2008) defines the word *impair* as "the state or fact of being impaired," which means to be weakened or damaged based on the Latin word *pejor* meaning worse

- To be impaired means to be unable to perform whatever daily activities are required

- Impairment has been defined by the AMA as "any physical, mental or behavioral disorder that interferes with the ability to engage safely in any life activity

Impairment

| Loss of function | Specific | Temporary or permanent | Midpoint or step towards disability | Requires accommodations |

Conceptual Basis of Impairment

- In Western medicine, the medical model guides diagnosis and treatment in all aspects of medicine, mental health, and to some extent, education

- The purpose of this model is to identify treatments for diagnoses based on evidence of specific symptoms assumed to suggest problems inherent within one or more organs of the body

- The medical model has driven research and theory about physical and mental health problems on the basis of causation, symptom relief, and cure and in many cases has been quite successful (e.g., tuberculosis, measles, etc.)

Conceptual Basis of Impairment

- As the fields of medicine, psychology and education have evolved, interest in the degree of impairment an individual may experience in a given situation, regardless of diagnosis, has increased

- A recent Google search revealed thousands of relevant books and scientific articles addressing impairments caused secondary to physical, mental health and educational conditions

Google   Impairment

All   Images   Books   Apps   News   More ▼   Search tools

About 58,500,000 results (0.59 seconds)

Conceptual Basis of Impairment

- The American Psychiatric Association in the new DSM-5 (APA, 2013) very heavily emphasizes the role of impairment over and above symptom presentation

- However, the issue of disability has been complicated and often confused with the severity of a particular condition. There is no doubt that there is a positive correlation between the severity of a condition and consequent disability or impairment but many studies have demonstrated that the relationship is not particularly robust.

- 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 (WHO, 2001)

Conceptual Basis of Impairment

- Findings suggest that the lives of individuals 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 is therefore not surprising that in a previous revision of the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (APA, 2000) a requirement of significant impairment was noted in more than 70% of the disorders listed as a criterion for diagnosis (Lehman, Alexopoulous, Goldman, Jeste, & Üstün, 2002). This requirement has continued in the new DSM-5 (APA, 2013)

Impairment

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

How is Impairment Defined?

The medical community?

The educational community?

The mental health community?

The vocational community?

The AAMR?

WHO?

Impairment has been defined by the AMA as "any physical, mental or behavioral disorder" that interferes with the ability to engage safely in daily activities

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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 (b) of this section.

The **Global Assessment of Functioning** (**GAF**) in DSM IV

- A numeric scale (0 through 100) used by mental health clinicians and doctors to rate the social, occupational and psychological functioning of adults

- The scale is presented and described in the DSM-IV-TR

- Children and adolescents under the age of 18 are evaluated on the Children's Global Assessment Scale, or C-GAS

Global Impairment Scale

100-81

- In a wide range of activities, absent or minimal symptoms, good functioning in all areas, interested and involved in a wide range of activities, socially effective, generally satisfied with life, no more than everyday problems or concerns

80-71

- If symptoms are present they are transient and expectable reactions to psychosocial stresses; no more than slight impairment in social, occupational, or school functioning

GAF

70-61

- Some mild symptoms OR some difficulty in social, occupational, or school functioning, but generally functioning pretty well, has some meaningful interpersonal relationships

60-51

- Moderate symptoms OR any moderate difficulty in social, occupational, or school functioning

50-41

- Serious symptoms OR any serious impairment in social, occupational, or school functioning

GAF

40-31

- Some impairment in reality testing or communication OR major impairment in several areas, such as work or school, family relations, judgment, thinking, or mood

30-21

- Behavior is considered influenced by delusions or hallucinations OR serious impairment in communications or judgment OR inability to function in all areas

20-11

- Some danger of hurting self or others OR occasionally fails to maintain minimal personal hygiene OR gross impairment in communication

Global Impairment Scale

10-1

- Persistent danger of severely hurting self or others OR persistent inability to maintain minimum personal hygiene OR serious suicidal act with clear expectation of death

0

- Not enough information available to provide GAF

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 (Pedersena and Karteruda, 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)

Impairment

Mental Health:	Medical Field:	AMA:	Intellectual Field:	RSI?
Functional limitations imposed as a result of a psychological disorder	Adverse level of physical functioning within the body	Impairment is a significant deviation, loss, or loss of use of any body structure or body function in an individual with a health condition, disorder, or disease	related to level of adaptive behavior and intellectual deficit	

Rating Scale of Impairment (RSI)

Sam Goldstein, Ph.D.
- Neuropsychologist
- Adjunct Assistant Professor, University of Utah
- Clinical Director, Neurology, Learning and Behavior Center, Salt Lake City

Jack Naglieri, Ph.D.
- Research Professor at Curry School of Education
- University of Virginia

RSI | RATING SCALE OF IMPAIRMENT

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

TECHNICAL MANUAL   MHS

RSI Structure: Scales

School

Mobility

Family

Social

Domestic

Self-Care

ICF, WHODAS 2.0 & RSI

Activities and Participation of ICF

- Learning and applying knowledge
- General tasks and demands
- Communication
- Mobility
- Self-care
- Domestic life
- Interpersonal interactions and relationships
- Major life areas
- Community, social and civic life

WHODAS 2.0

- Cognition
- Mobility
- Self-care
- Life activities
- Getting along
- Life activities
- Participation

RSI

- School/Work
- Social
- Family
- Mobility
- Self-care
- Domestic

Impairment: Defined in the RSI

- Limitation in meeting the demands of life as a result of:
  - Psychological
  - Physical
  - Cognitive Disorder(s)
- Manifests as a reduced capability to meet:
  - **physical mobility** and **self-care** needs,
  - **family** and **social** interaction expectations
  - **domestic** commitments and **school or work** obligations

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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
School
Social
Mobility
Domestic
Family

RSI Scales
School
Social
Mobility

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

RSI Scales
School
Social
Mobility

Key Benefits of the RSI

- ✓ Assess impairment clearly **regardless of the diagnosis**

- ✓ Large representative **normative** sample

- ✓ Assist in forming intervention and **treatment planning**

- ✓ **Age-appropriate** items

- ✓ Can be completed in only **5-10** minutes

- ✓ Available in **Spanish**

- ✓ **Multiple raters** for a more accurate assessment

- ✓ Monitor **progress** across time

- ✓ Satisfies the impairment criteria of the **DSM-5**

- ✓ Aligned with **WHO**'s domains of functioning identified in **ICF**

"Data don't make any sense, we will have to resort to statistics."

PSYCHOMETRIC PROPERTIES

Not Reliable Not Valid   Reliable Not Valid   Both Reliable and Valid

Psychometric Properties

Data collection for the standardization and related research of the Rating Scale of Impairment (RSI™) took place from September, 2012 to August, 2014. During the data collection process, ratings on children/youths from all 50 U.S. states were collected, and over 8,000 ratings were completed across the four RSI forms.

Standardization

- RSI Normative Sample:
  - **2,800** ratings
    - **800** ratings for each of the RSI (5-12 Years) Parent and Teacher forms
    - **600** ratings for each of the RSI (13-18 Years) Parent and Teacher forms
- Within **1% the 2010 U.S. Census** targets on:
  - Race/ethnicity
  - Region
  - PEL
- Includes 11.6%-11.8% of clinical cases

Importance of a National Norm

- The way we calibrate a psychological test or rating scale score has a direct impact on the reliability and validity of the instrument

- The composition of the comparison and characteristics of the group is especially important whenever diagnostic decisions are being made

- What is the current state of the art?

Importance of a National Norm

Calibration of Standard Scores (Mn = 100; SD = 15) Across Parental
Educational Levels for CEFI Parent Ratings.

Raw Score	Standard Scores				
	<HS	HS Grad	Some Coll	Coll Grad	National
230	96	91	88	85	90
235	97	92	89	87	91
240	98	93	90	88	92
245	99	95	92	89	93
250	100	96	93	90	94
255	101	97	94	92	95
260	102	98	95	93	97
265	103	99	96	94	98
270	104	100	98	95	99
275	105	101	99	96	100
280	106	102	100	98	101
285	107	103	101	99	102
290	108	105	102	100	103
295	109	106	103	101	105
300	110	107	105	103	106
305	111	108	106	104	107
310	112	109	107	105	108
315	113	110	108	106	109

Age and Gender Effects

RSI Parent Forms

RSI Teacher Forms

There were negligible to small relationships between RSI scores and age of the rated child/youth. For both the RSI (5–12 Years) Parent and Teacher Forms, results indicated no significant main effects of age, with negligible to small effect sizes between any two specific ages (e.g., 5-year-olds versus 12-year-olds)

For the RSI (13–18 Years) Forms, results indicated significant main effects of gender with at least small effect sizes on the School/Work and Self-Care scales for the Parent Form, and on all RSI Scales and the Total Score for the Teacher Form. These results are consistent with research findings indicating that ratings of impairment vary across genders.

Symptoms Vs. Impairment

Conners 3-T DSM-5 Scales

Race Effects

Mean differences among the three race groups of:

Hispanic

Black

White

Race Effects

RSI (5-12 YRSI (5-12 Years))

RSI Score		Hispanic	Black	White	F (df)	p	Pairwise (p < .01)	Partial η²	Pairwise d-ratios Hispanic vs. White	Black vs. White	Hispanic vs. Black
School	M	47.1	48.5	50.4	6.856 (2, 709)	.001	ns	.019	0.31	0.19	0.13
	SD	11.1	10.2	10.3							
	N	188	109	430							
Social	M	47.7	49.2	50.4	4.239 (2, 709)	.015	n/a	.012	0.25	0.11	0.14
	SD	11.4	10.5	10.5							
	N	188	108	431							
Mobility	M	50.2	49.9	49.0	1.078 (2, 710)	.341	n/a	.003	-0.12	-0.09	-0.03
	SD	11.4	10.5	10.5							
	N	188	109	431							
Domestic	M	48.1	48.2	51.4	8.894 (2, 710)	< .001	H < W B < W	.024	0.31	0.31	0.01
	SD	11.2	10.4	10.4							
	N	188	109	431							
Family	M	48.7	49.8	49.9	0.761 (2, 710)	.468	n/a	.002	0.11	0.00	0.10
	SD	11.3	10.5	10.5							
	N	188	109	431							
Total Score	M	47.8	48.9	50.3	3.697 (2, 708)	.025	n/a	.010	0.23	0.14	0.09
	SD	11.4	10.5	10.5							
	N	188	108	430							

RSI (5-12 Years) Teacher Form

RSI Score		Hispanic	Black	White	F (df)	p	Pairwise (p < .01)	Partial η²	Pairwise d-ratios Hispanic vs. White	Black vs. White	Hispanic vs. Black
School	M	49.9	51.9	49.9	1.967 (2, 715)	.141	n/a	.005	0.00	-0.21	0.20
	SD	10.2	9.9	9.7							
	N	189	110	430							
Social	M	49.7	50.5	50.4	0.336 (2, 715)	.715	n/a	.001	0.07	-0.01	0.08
	SD	10.5	10.2	10.0							
	N	189	110	430							
Mobility	M	50.1	50.9	49.7	0.702 (2, 715)	.496	n/a	.002	-0.04	-0.12	0.08
	SD	10.4	10.1	9.9							
	N	189	110	430							
Total Score	M	49.9	51.5	49.9	1.193 (2, 715)	.304	n/a	.003	0.00	-0.16	0.16
	SD	10.3	9.9	9.7							
	N	189	110	430							

RSI (13-18 Years) Parent Form

RSI Score		Hispanic	Black	White	F (df)	p	Pairwise (p < .01)	Partial η²	Pairwise d-ratios Hispanic vs. White	Black vs. White	Hispanic vs. Black
School/ Work	M	48.5	47.3	49.8	2.610 (2, 536)	.074	n/a	.010	0.12	0.25	-0.12
	SD	10.5	9.9	10.6							
	N	130	86	336							
Social	M	49.0	48.8	50.2	0.973 (2, 536)	.378	n/a	.004	0.11	0.13	-0.02
	SD	11.0	10.4	11.1							
	N	130	86	336							
Mobility	M	50.8	47.8	49.0	2.305 (2, 535)	.101	n/a	.009	-0.16	0.11	-0.28
	SD	10.8	10.2	10.9							
	N	130	86	335							
Domestic	M	47.8	48.4	51.4	6.575 (2, 536)	.002	H < W	.024	0.33	0.28	0.06
	SD	10.7	10.1	10.8							
	N	130	86	336							
Family	M	50.3	46.7	49.8	3.722 (2, 536)	.025	n/a	.014	-0.05	0.28	-0.34
	SD	11.0	10.4	11.2							
	N	130	86	336							
Self-Care	M	50.1	49.0	49.6	0.318 (2, 536)	.728	n/a	.001	-0.05	0.06	-0.11
	SD	10.6	10.1	10.8							
	N	130	86	336							
Total Score	M	49.3	47.4	50.0	2.497 (2, 535)	.083	n/a	.009	0.07	0.25	-0.18
	SD	10.8	10.2	10.9							
	N	130	86	335							

	RSI Score	Hispanic	Black	White	F (df)	p	Pair wise (p < .01)	Partial η²	Hispanic vs. White	Black vs. White	Hispanic vs. Black
									Pairwise d-ratios		
RSI (13-18 Years) Teacher Form	**School** M	50.0	52.7	49.7	3.298 (2, 540)	.038	n/a	.012	-0.03	-0.31	0.27
	SD	10.2	10.0	9.8							
	N	130	86	336							
	Social M	48.8	51.4	50.0	1.759 (2, 540)	.173	n/a	.006	0.12	-0.14	0.26
	SD	10.2	10.0	9.8							
	N	130	86	336							
	Mobility M	50.3	51.4	49.9	0.686 (2, 550)	.504	n/a	.003	-0.03	-0.14	0.11
	SD	10.7	10.5	10.3							
	N	130	86	336							
	Total Score M	49.6	52.5	49.8	2.695 (2, 540)	.068	n/a	.010	0.02	-0.26	0.28
	SD	10.5	10.3	10.1							
	N	130	86	336							

Race Effects

Very few race effects were found and effect sizes were negligible to small across RSI Forms

No evidence of any race effects

Reliability

Internal Consistency	• The degree to which items on a scale measure the same construct
Range	• 0.76 – 0.96
Median	• 0.89 (normative sample), 0.91 (clinical sample)

Evidence of strong internal consistency

Table 7.1. Cronbach's Alpha and Composite Score Reliability: RSI Normative and Clinical Samples

Score		Number of Items	Normative				Clinical			
			RSI (5–12 Years) Forms		RSI (13–18 Years) Forms		RSI (5–12 Years) Forms		RSI (13–18 Years) Forms	
			Parent	Teacher	Parent	Teacher	Parent	Teacher	Parent	Teacher
			N = 776–794	N = 794–798	N = 584–596	N = 597–599	N = 471–494	N = 379–383	N = 357–373	N = 227–232
RSI Scale	School/Work[1]	10	.90	.94	.90	.93	.90	.92	.93	.93
	Social	10	.88	.89	.86	.89	.87	.92	.91	.92
	Mobility	9	.79	.87	.85	.91	.85	.90	.88	.92
	Domestic	7	.85	n/a	.85	n/a	.85	n/a	.88	n/a
	Family	5	.76	n/a	.82	n/a	.78	n/a	.86	n/a
	Self-Care	8	n/a	n/a	.75	n/a	n/a	n/a	.83	n/a
Total Score		29–49	.94	.95	.95	.95	.94	.95	.96	.95

Note. Sample sizes vary due to omitted items. n/a = not available
[1]School scale for the RSI (5–12 Years) Parent and Teacher Forms and the RSI (13–18 Years) Teacher Form; School/Work scale for the RSI (13–18 Years) Parent Form.

The results suggest that the RSI scores have excellent stability; for the RSI scales and Total Score, over 89% and 81% of the differences on the Parent and Teacher Forms respectively fell within +/- 10 *T*-scores (i.e., one standard deviation). The mean differences were very close to zero, supporting the stability of the RSI across administrations.

Test-Retest Reliability: RSI (5-12 Years)

Parent

Score		r*	N
RSI Scale	School	.97	143
	Social	.93	145
	Mobility	.95	138
	Domestic	.89	147
	Family	.91	145
Total Score		.96	146

Teacher

Score		r*	N
RSI Scale	School	.94	162
	Social	.85	159
	Mobility	.87	154
Total Score		.91	161

*The time interval between administrations varied between 14 and 30 days

Test-Retest Reliability: RSI (13-18 Years)

Parent				Teacher			
Score		r	N	**Score**		r	N
RSI Scale	School/Work	.93	189	**RSI Scale**	School	.90	185
	Social	.91	190		Social	.87	192
	Mobility	.94	182		Mobility	.95	179
	Domestic	.91	191				
	Family	.92	187				
	Self-Care	.95	183				
Total Score		.96	185	**Total Score**		.89	186

*The time interval between administrations varied between 14 and 30 days

Inter-Rater Reliability

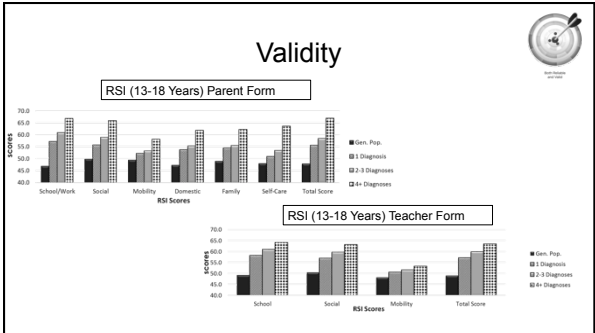| Parent 1 vs Parent 2				Teacher 1 vs. Teacher 2			
Score		r	N	**Score**		r	N
RSI Scale	School/Work	.85	99	**RSI Scale**	School	.59	75
	Social	.75	95		Social	.56	77
	Mobility	.73	97		Mobility	.59	73
	Domestic	.82	97				
	Family	.65	99				
	Self-Care	.68	36				
Total Score		.87	90	**Total Score**		.77	70

*The Self-Care scale is only included in the RSI (13–18 Years) Forms, thus sample size is reduced
**The time interval between administrations varied between 0 and 30 days

Consistency Between Raters

Parent 1 vs Parent 2 (5-12 years)				Teacher 1 vs. Teacher 2 (5-12 years)			
Score		r	N	**Score**		r	N
RSI Scale	School	.50	349	**RSI Scale**	School	.42	196
	Social	.55	344		Social	.48	192
	Mobility	.46	328		Mobility	.50	187
Total Score		.54	339	**Total Score**		.50	190

26

Validity

RSI (5–12 Years) Parent Form

RSI (5–12 Years) Teacher Form

Validity

RSI (13-18 Years) Parent Form

RSI (13-18 Years) Teacher Form

Is the RSI Measuring Unique Variance?

WISC IV FS	-.07
CAS FS	-.04
WJ III Achievement	-.03
Clinician Rating	.34

27

Is the RSI Measuring Unique Variance?

CGAS	.41
Conners	.23
Conners	.29
ABAS	- .52
DESSA	- .71
CEFI	- .78
WISC IV	- .07
CAS	- .04
WJ III	- .03
Clinician Scale	.34

Is the RSI Measuring Unique Variance?

5-12	Parent	.24
5 -12	Teacher	.19
13 -16	Parent	.22
13 -16	Teacher	.26
5 - 12	Parent	.33
5 -12	Teacher	.27
13 -16	Parent	.32
13 -16	Teacher	.27

Is the RSI Measuring Unique Variance?
ABAS

5 - 12	Parent	-.45
5 - 12	Teacher	-.54
13 - 16	Parent	-.50
13 -16	Teacher	-.57

Is the RSI Measuring Unique Variance?

5 - 12	Parent	.65
5 - 12	Teacher	.77

Is the RSI Measuring Unique Variance?

5 - 12	Parent	.80
5 - 12	Teacher	.76
13 – 16	Parent	.84
13 - 16	Teacher	.70

Validity

- **Correlation with Barkley:**
  - Evidence for the convergent validity of the RSI
  - No evidence of the redundancy between the two measures.
- **Correlation with CGAS:**
  - Norm-based measure like the RSI accounts for some unique variance that is not captured by clinician's subjective opinion on impairment measured by CGAS

Impairment	
.59	Barkley Functional Impairment Scale
-.41	Children's Global Assessment Scale (CGAS)

Validity

- Impairment and symptoms are not strongly related.
- Symptoms and impairment are different constructs

	Symptoms
.29	Conners CBRS – Symptom Scales
.26	Conners CBRS – Content Scales

Validity

- RSI is related to measures of adaptive behavior such as ABAS-II
- Moderate relationship to suggest that the two are capturing different constructs

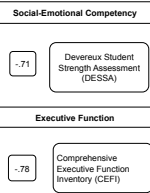|	Adaptive Behavior
-.54	Adaptive Behavior Assessment System-II (ABAS-II)

Validity

- RSI and intelligence/achievement measures are not related
- Children/youth who are diagnosed can exhibit significant impairment regardless of their level of intellectual ability

	Ability and Achievement
-.05	Wechsler Intelligence Scale for Children - IV
-.03	Cognitive Assessment System(CAS)

Validity

- Relatively high correlation with CEFI and DESSA

- CEFI and DESSA measure executive function and social emotional competence respectively, constructs related to functioning of the frontal lobe, therefore providing means by which humans meet the demands of life similar to the RSI

Social-Emotional Competency	
-.71	Devereux Student Strength Assessment (DESSA)

Executive Function	
-.78	Comprehensive Executive Function Inventory (CEFI)

Administration & Scoring

Administration

- **Qualification level:** B
- **Raters:** Parents and Teachers of children/youth aged:
  - 5-12 Years
  - 13-18 Years
- **Time Frame:** past four weeks
- **Six-point scale:** Never to Always
- **Administration Time**: 5-10 min
- **Admin and Scoring:** paper and online

Scoring

1. Calculate Raw Scores: Copy the response to the unshaded box on its left. Then add the responses to obtain each *Scale Raw Score*.

Scale Raw Score: 42 | 37 | 2 | 33 | 13 | 24

---

2. Calculate *T*-scores, Percentile Rank, and Classification:
   Use the Conversion Table to obtain the *T*-Score, Percentile Rank and Classification

3. Confidence Interval:
   Select 90% (recommended) or 95% Confidence Interval and obtain the values from the manual

4. Total Score:
   Add the Scale *T*-scores to obtain the Total Raw Score. Repeat the steps above to obtain the *T*-score, Percentile Rank, Confidence Interval and Classification

Scale Scores Table

Scales	Raw Score	T-score	90% or 95% (circle one) 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 Raw Score = 438

Total Score Table

Total Score	Raw Score	T-score	90% or 95% (circle one) Confidence Interval	Percentile Rank	Classification
	438	81	76 to 89	99	Considerable impairment

Interpretation

RSI Score Interpretation

T-scores	Percentile Ranks	Classification
< 60	1-82	No Impairment
60-64	84-92	Mild Impairment
65-69	93-97	Moderate Impairment
≥ 70	98-99	Considerable Impairment

RSI Total Score

• Same guidelines as previous page

• Classification of the Total Score might be higher or lower than the individual Scale scores

• **Each RSI Scale score should be examined individually, to obtain a more complete review of the child/youth's impairment**

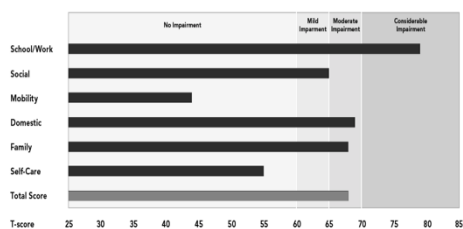Interpretative   Progress Monitoring   Comparative

RSI Reports

Interpretive Reports

Overview of Results for John

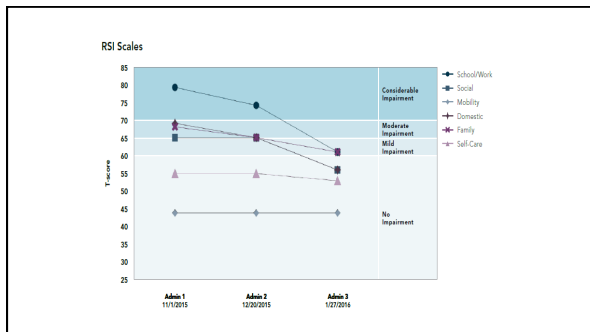| Scale	T-score (90% CI)	Percentile Rank	Classification	Interpretive Guideline
School/Work	79 (71-81)	99	Considerable Impairment	Considerable level of impairment in acquiring and applying knowledge at school and/or work.
Social	65 (57-69)	93	Moderate Impairment	Moderate level of impairment when interacting, socializing, and communicating with others.
Mobility	44 (39-51)	27	No Impairment	No impairment indicated.
Domestic	69 (60-72)	97	Moderate Impairment	Moderate level of impairment in the ability to do household tasks.
Family	68 (58-71)	96	Moderate Impairment	Moderate level of impairment when interacting with family.
Self-Care	55 (47-61)	69	No Impairment	No impairment indicated.

SCHOOL/WORK

John's School/Work scale score reflects his level of impairment when acquiring and applying knowledge at school and/or work. Ratings on this scale yielded a T-score of 79 (90% CI = 71-81), which is ranked at the 99th percentile, and falls within the *Considerable Impairment* range.

The following specific area(s) of impairment were noted by the parent:

- being organized
- learning at school or work
- finding solutions to problems
- remembering to do things
- concentrating
- getting started at school or work
- preparing for school or work
- following instructions

Progress Monitoring Reports

RSI Scales

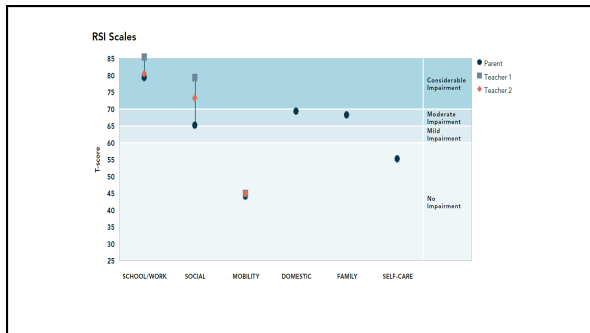| Scale		Admin 1 11/1/2015	Admin 2 12/29/2015	Admin 3 1/27/2016	Significant Change Across Administrations		
					Overall (1 to 3)	Admin (1 to 2)	Admin (2 to 3)
School/Work	T-score	79	74	61	Decrease	No Change	Decrease
	Classification	Considerable Impairment	Considerable Impairment	Mild Impairment			
Social	T-score	65	65	56	No Change	No Change	No Change
	Classification	Moderate Impairment	Moderate Impairment	No Impairment			
Mobility	T-score	44	44	44	No Change	No Change	No Change
	Classification	No Impairment	No Impairment	No Impairment			
Domestic	T-score	69	65	56	Decrease	No Change	No Change
	Classification	Moderate Impairment	Moderate Impairment	No Impairment			
Family	T-score	68	65	61	No Change	No Change	No Change
	Classification	Moderate Impairment	Moderate Impairment	Mild Impairment			
Self-Care	T-score	55	55	53	No Change	No Change	No Change
	Classification	No Impairment	No Impairment	No Impairment			

SCHOOL/WORK

John's **School/Work** scale score reflects his level of impairment when acquiring and applying knowledge at school and/or work.

- At pre-test, his T-score of 79 (90% CI = 71-81), is ranked at the 99th percentile, and falls within the *Considerable Impairment* range.

- At post-test, his T-score of 61 (90% CI = 55-65), is ranked at the 86th percentile, and falls within the *Mild Impairment* range.

- John's School/Work scale score significantly decreased from pre-test to post-test. This means that his difficulty in learning and applying knowledge at school and/or work significantly decreased.
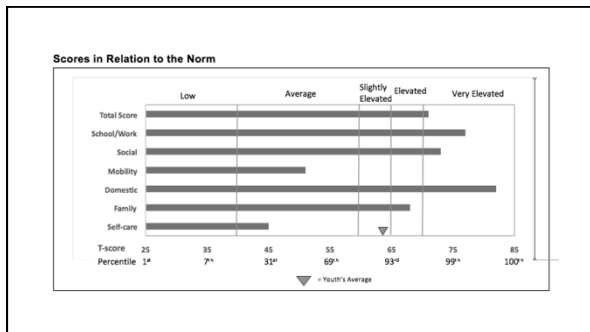

Comparative Reports

RSI Scales

RSI Scales

Scale		Parent 11/1/2015	Teacher 1 11/4/2015	Teacher 2 11/5/2015	Significant Differences Between Raters
School/Work	T-score	79	85	80	No significant differences
	Classification	Considerable Impairment	Considerable Impairment	Considerable Impairment	
Social	T-score	65	79	73	T1 > P
	Classification	Moderate Impairment	Considerable Impairment	Considerable Impairment	
Mobility	T-score	44	45	45	No significant differences
	Classification	No Impairment	No Impairment	No Impairment	
Domestic	T-score	69	Domestic scale does not appear on the Teacher Form.	Domestic scale does not appear on the Teacher Form.	No comparison possible
	Classification	Moderate Impairment			
Family	T-score	68	Family scale does not appear on the Teacher Form.	Family scale does not appear on the Teacher Form.	No comparison possible
	Classification	Moderate Impairment			
Self-Care	T-score	55	Self-Care scale does not appear on the Teacher Form.	Self-Care scale does not appear on the Teacher Form.	No comparison possible
	Classification	No Impairment			

Scores in Relation to the Norm

Scale	T-score (90% CI)	Percentile	Classification	Interpretive Guideline
Total Score	71 (66-76)	60	Very Elevated	Has impairment in one or more life areas compared to the general population.
RSI Scale				
School/Work	77 (72-83)	80	Very Elevated	Has an impairment in acquiring and applying knowledge, as well as has highly impaired behaviors in school and other areas of life.
Social	73 (67-77)	65	Very Elevated	Has an impairment when interacting, socializing and communicating with others.
Mobility	51 (49-56)	28	Average	No impairment indicated.
Domestic	82 (74-85)	95	Very Elevated	Has an impairment in the ability to do household tasks.
Family	68 (54-79)	49	Elevated	Has an impairment when interacting with family.
Self-care	45 (34-57)	13	Low	No impairment indicated.

Scores in Relation to the Individual

If a T-score on any of the RSI Scales is greater than or equal to 60 and significantly higher than the youth's average score on the RSI Scales, then that score represents a weakness in functioning in that life area.

RSI Scale	T-score	Difference from Youth's Average (66.5) (Scale Score – Average)	Statistically Significant? (p < .05)	Weakness?
School/Work	77	10.5	Yes	Weakness
Social	73	6.5	No	No
Mobility	51	-15.5	No	No
Domestic	82	18.5	Yes	Weakness
Family	68	1.5	No	No
Self-care	45	-21.5	No	No

Social	Results
Interacting, socializing and communicating with others, including socializing, talking in a group, communicating needs and enjoying being with others. **Specific Concerns** • talking with people • asking for help • having friends	Considerable Impairment

Mobility	Results
The manner in which the youth physically engages in her environment **Specific Concerns** • walking without being out of breath	No Impairment

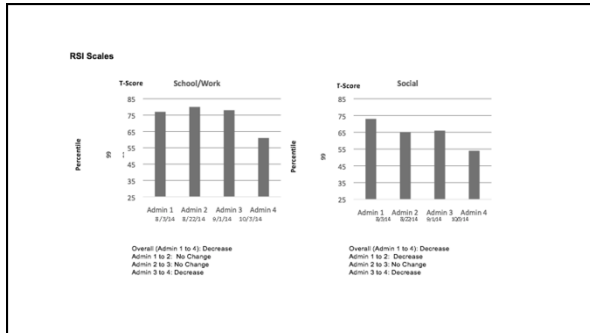| Domestic	Results
Completing household tasks. **Specific Concerns** • picking up dirty clothes • cleaning up • putting things away • finishing chores	Considerable Impairment

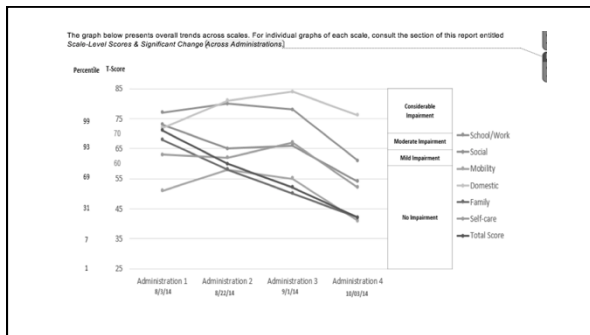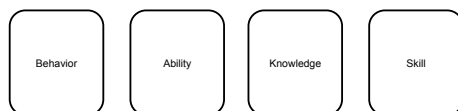| Family	Results
Interactions with the youth's family, for example, communicating with family, taking part in family discussions and family activities. **Specific Concerns** • feeling like part of the family • sharing feelings • participating in family discussions • participating in family activities	Moderate Impairment

RSI Scales

T-Score — School/Work

T-Score — Social

Admin 1 8/3/14 Admin 2 8/22/14 Admin 3 9/1/14 Admin 4 10/3/14

Overall (Admin 1 to 4): Decrease
Admin 1 to 2: No Change
Admin 2 to 3: No Change
Admin 3 to 4: Decrease

Overall (Admin 1 to 4): Decrease
Admin 1 to 2: Decrease
Admin 2 to 3: No Change
Admin 3 to 4: Decrease

| Scale | | Admin 1 8/3/14 | Admin 2 8/22/14 | Admin 3 9/1/14 | Admin 4 10/3/14 | Significant Change Across Administrations | | | |
						Overall (1 to 4)	Admin 1 to 2	Admin 2 to 3	Admin 3 to 4
School/Work	T-score (90% CI)	77 (72-82)	80 (75-85)	78 (73-82)	61 (56-66)	Decrease	No Change	No Change	Decrease
	Percentile	88	96	91	49				
	Classification	Considerable Impairment	Considerable Impairment	Considerable Impairment	Mild Impairment				
Social	T-score (90% CI)	73 (68-78)	65 (60-70)	66 (61-71)	54 (49-59)	Decrease	Decrease	No Change	Decrease
	Percentile	81	59	61	32				
	Classification	Considerable Impairment	Moderate Impairment	Moderate Impairment	No Impairment				
Mobility	T-score (90% CI)	51 (46-56)	58 (53-63)	55 (50-60)	51 (46-56)	No Change	Increase	No Change	Decrease
	Percentile	31	40	33	31				
	Classification	No Impairment	No Impairment	No Impairment	No Impairment				
Domestic	T-score (90% CI)	72 (68-78)	81 (75-85)	84 (75-85)	N/A	No Change	No Change	No Change	Decrease
	Percentile	74	97	98	N/A				
	Classification	Considerable Impairment	Considerable Impairment	Considerable Impairment	N/A				
Family	T-score (90% CI)	68* (54-79)	58 (51-61)	58 (45-55)	42 (37-47)	Decrease	Decrease	No Change	No Change
	Percentile	54	40	28	27				
	Classification	Moderate Impairment	No Impairment	No Impairment	No Impairment				
Self-care	T-score (90% CI)	63 (58-68)	62 (57-67)	67 (62-72)	52 (47-57)	Decrease	No Change	No Change	No Change
	Percentile	51	49	51	30				
	Classification	Impairment	Impairment	Impairment	No Impairment				

Note(s): N/A = Not Available; this score could not be calculated/comparisons could not be made due to omitted items.
*The score for this scale was prorated to adjust for omitted item(s).

The graph below presents overall trends across scales. For individual graphs of each scale, consult the section of this report entitled *Scale-Level Scores & Significant Change (Across Administrations)*

Percentile T-Score

Considerable Impairment
Moderate Impairment
Mild Impairment
No Impairment

School/Work
Social
Mobility
Domestic
Family
Self-care
Total Score

Administration 1 8/3/14 Administration 2 8/22/14 Administration 3 9/1/14 Administration 4 10/03/14

39

The Process of Assessment: Assessing the Components of Human Functioning

| Behavior | Ability | Knowledge | Skill |

The Process of Assessment: Definition of the Type and Extent of Impairment

• Careful history

• Valid, reliable, normative behavioral measures

• Valid, reliable and valid measures of ability, knowledge and skill

• Valid, reliable, normative measure(s) of impairment

• Methods to integrate the data, form diagnostic conclusions, design, implement and monitor treatment

Joey

Thirteen-year-old Joey has a history of attention and social problems.

He has been diagnosed with Attention Deficit/Hyperactivity Disorder (ADHD) and is currently taking psychiatric medication.

Despite the medical and educational interventions he receives, Joey continues to struggle in school, in his interpersonal relationships, and in many related aspects of daily living.

Joey

Joey was referred for a complete assessment of his functioning in school, home, and social domains to identify particular areas of limitation and to assist with setting up goals and identifying strategies for developing independent living and improved social skills.

Joey's mother was interviewed to obtain a comprehensive history.

She mentioned that due to Joey's ADHD symptoms, he has always struggled in a number of life areas.

Joey

His mother reported that she has been unsatisfied with the effect of the medical and educational interventions that Joey has received, as he continues to struggle significantly in school.

Joey appears to be advanced in some academic areas, but very behind in others.

He does not seek out friendships at school, nor is he sought out by peers.

He is passive and avoids social interactions.

Joey

At home, he demonstrates poor hygiene, he refuses to brush his teeth, and needs to be reminded every time to wash his hands after using the bathroom.

Joey refuses to cooperate and to complete any assigned chores at home, and he often leaves his room a mess.

Joey also tends to become very disruptive when he is told what to do. He does not seem to learn well from experience.

Joey

Parent and teacher reports on standardized behavioral checklists noted concern
in both home and school settings for emotional distress, social impairment, academic
challenges, inattention, depression, and anxiety.

Furthermore, his Wechsler Intelligence Scale for Children – IV (Wechsler, 2004), Cognitive
Assessment System Second Edition (Naglieri, Das, & Goldstein, 2014), and Woodcock
Johnson III (Woodcock, McGrew, & Mather, 2001) scores demonstrated average intellect
with problems noted in Processing Speed (via WISC-IV) and Planning and Attention abilities
(via CAS2).

When assessed for reading, math, and written language (via WJ-III), Joey was placed
several grades below his current placement.

Joey

RSI Scale Scores

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 Raw Score	**438**				

Total Score

Total Score	Raw Score	T-score	90% Confidence Interval	Percentile Rank	Classification
	438	81	76 to 83	99	Considerable Impairment

Areas of Impairment

School/Work
- being 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 illevoted 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
- clean clothes
- brushing his teeth
- feeding himself
- dressing
- getting undressed
- washing his hands after using the bathroom

Treatment Plan For Joey

The modified treatment plan for Joey based upon currently obtained impairment scores began with a discussion with Joey's physician concerning the effectiveness of his current regime of medication.

With the input of the current data, Joey's physician made adjustments to the dosage and time of administration for the medication Joey was taking to alleviate ADHD symptoms.

Treatment Plan For Joey

Additionally, Joey's parents began working with a behavioral consultant, specifically targeting areas of impairment within the home setting.

A multi-level, response cost behavioral program was set in place at home, as the behavioral therapist was able to determine that Joey's impairments were not the result of lack of knowledge concerning domestic, family, or self-care behaviors.

Treatment Plan For Joey

At school, Joey's Individualized Education Plan was rewritten to include specific strategies to improve efficiency of functioning within the classroom and social relations.

The school psychologist consulted with Joey's teacher to include Joey in a social skills development group

Post Treatment RSI

RSI Scale Scores

Scale	Raw Score	T-score	90% Confidence Interval	Percentile Rank	Classification
School/Work	29	72	65 to 75	99	Considerable Impairment
Social	23	61	54 to 65	86	Mild Impairment
Mobility	2	47	42 to 53	38	No Impairment
Domestic	22	62	54 to 66	88	Mild Impairment
Family	7	50	44 to 56	50	No Impairment
Self-Care	13	75	62 to 76	99	Considerable Impairment
Total Raw Score =	367				

Total Score

Total Score	Raw Score	T-score	90% Confidence Interval	Percentile Rank	Classification
	367	65	61 to 68	93	Moderate Impairment

Pre/Post Treatment RSI

RSI Scale Scores

Scale	Raw Score	Pre T-score	Post T-score
School/Work	42	85	72
Social	37	79	61
Mobility	2	47	47
Domestic	33	79	62
Family	13	63	50
Self-Care	24	85	75
Total Raw Score	438		367

Total Score

Total Score	Raw Score	T-score	T-score
	438	81	65

Conclusions

- Functional impairment is not well measured in current symptom, behavior, achievement or ability assessment tools

- The RSI offers the first valid, reliable comprehensive measure of daily functional challenges within a factor analyzed framework built on the WHODAS

- Assessment of and treatment monitoring of impairment offers an important advance in assessment

Thank You!

Contact:
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RSI:
For more information on the RSI
assessment please check **MHS.com/RSI**

A few questions about slides:

1) Throughout the presentation there are hyperlinks embedded in the slides. Should they be removed or are they needed for the presentation?

2) When the Global Assessment of Function is explained, the first slide, #43, calls it the Global Impairment Scale, and the following slides revert back to GAF. Should it be uniform or was this intentional?

3) Slides 56 and 57 – There are two version of the psychometric properties slide. One is original with a comic and one uses an MHS image. Which is preferred? One needs to be deleted.

4) Slide 94 had a second red circle floating in the middle of white space, not near any image. It was deleted but was it supposed to correspond with a number or piece of information?

5) Slides 81 and 82 were deleted as they had more than 6 RSI items listed which we want to avoid. Is there any other information you'd liked inserted instead?