

Recognizing Mental Health in People with Down Syndrome

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<https://hope.lab.vcu.edu>

About me:

Clinical Psychologist

- Psychometrics, measure development
- Stress and trauma
- Treatment outcome research

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People with Down Syndrome Experience High Rates of Mental Health Disparities

- Anxiety
- Depression
 - Depression with Psychosis
- Down Syndrome Regression Disorder
- Catatonia

Prevalence of Mental Health Conditions Among 6078 Individuals With Down Syndrome in the United States

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Psychiatric Conditions Prevalent Among Adults With Down Syndrome

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RESEARCH ARTICLE

AMERICAN JOURNAL OF
medical genetics
WILEY

Co-occurring conditions in Down syndrome: Findings from a clinical database

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Assessment and Diagnosis of Down Syndrome Regression Disorder: International Expert Consensus

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ORIGINAL ARTICLE

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Unexplained regression in Down syndrome: Management of 51 patients in an international patient database

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The background features a large yellow area on the left. On the right, there are overlapping geometric shapes: a dark purple rectangle and an orange triangle pointing downwards, which overlaps the purple rectangle and the yellow area.

Recognizing Common Mental Health Disorders in People with Down Syndrome

Specific Phobia

What is Specific Phobia?

- Intense fear of a specific object or situation (e.g., dogs, storms, doctors)
- Fear is out of proportion to the actual danger

How Might It Look in Down Syndrome?

- Avoidance of certain places, people, or activities
- Tantrums or shutdowns when facing feared object
- Difficulty explaining fears verbally, fear shown through behavior

Social Phobia (Social Anxiety Disorder)

What is Social Anxiety?

- Intense fear of being judged or embarrassed in social situations

How Might It Look in Down Syndrome?

- Refusing to participate in group activities or school events
- Clinging to familiar adults, avoiding peers
- Shutting down in public or social settings

Generalized Anxiety Disorder (GAD)

What is GAD?

- Excessive worry about many things (school, health, family) most days, for at least 6 months
- Worry is hard to control
- May seem restless, easily tired, irritable
- Trouble concentrating or mind going blank
- Muscle tension
- Sleep difficulties (not due to apnea)

How Might It Look in Down Syndrome?

- Repetitive questions about routines or safety
- Seeking reassurance frequently
- Physical symptoms: stomachaches, headaches
- May appear irritable or restless

Obsessive Compulsive Disorder (OCD)

What is OCD?

- Unwanted, repetitive thoughts (obsessions)
- Repetitive behaviors (compulsions) performed to reduce anxiety
- Time-consuming (more than 1 hour/day) or causes distress or problems in daily life

How Might It Look in Down Syndrome?

- Repeating the actions (checking doors, arranging things)
- Obsessional slowness because things have to be “just right”
- Insisting on routines or sameness
- Becoming distressed if rituals are interrupted
- May be mistaken for 'rigidity' rather than anxiety-driven

Diagnostic Challenges

- Difficult to assess obsessional thoughts if verbal communication is limited
- Difficult to determine if thoughts or compulsions are distressing

Posttraumatic Stress Disorder

What is PTSD?

- A mental health condition triggered by experiencing or witnessing a terrifying event.
- Characterized by intrusive memories, avoidance, and heightened physical reactions.
- Involves a "stuck" stress response where the brain stays in fight-or-flight mode.

How Might It Look in Down Syndrome?

- Frequent self-talk about the event or reenactment
- Aggression, outbursts, and self-injurious behavior.
- Deterioration of adaptive skills, particularly after abuse, especially in severe ID.
- Other behaviors like non-compliance, social isolation, and sleep problems.
- Increased startle response or sensory overwhelm
- Avoidance and re-experiencing symptoms (e.g., flashbacks) may be mistaken as psychosis.

Depression

What is Depression?

- A mood disorder causing persistent feelings of sadness and loss of interest.
- Involves physical symptoms like sleep disruption, fatigue, and appetite changes.

How Might It Look In Down Syndrome?

- Loss of previously mastered self-care or social skills.
- Moving or speaking significantly slower than usual.
- A noticeable rise in frequency or a change in the tone of private speech.
- New onset of urinary accidents or extreme changes in sleep patterns.
- Acting out, stubbornness, or agitation instead of appearing "tearful."

Down Syndrome Regression Disorder (DSRD) / Catatonia

What is Down Syndrome Regression Disorder

- Sudden or sub-acute loss of previously acquired skills or abilities, including communication, toileting, daily living skills

What is Catatonia

- Neuropsychiatric syndrome characterized by motor and behavioral changes
- Can involve being "frozen" (stupor) or excessive, purposeless movement (excitement).

Both can be caused or accompanied by various medical and psychiatric illnesses

Symptoms Are Often Overlooked

Diagnostic Overshadowing

- One diagnosis “overshadows” another diagnosis
- “Just Down syndrome”

Medical Complexity

- Sleep apnea
- Thyroid
- Alzheimer’s Disease

Symptoms Present Differently

- Communication differences
- Cognitive differences

Few Tools to Help Doctors Make an Accurate Diagnosis



NIH K08 Career Development Award

- 127 children, parents, or self advocates with Down syndrome and mosaic Down syndrome
 - 62 with mDS, 53 with Trisomy 21 (12 unknown)
 - Recruited through Down syndrome organizations and **NIH DS-Connect registry**
- Aged 12-45 years

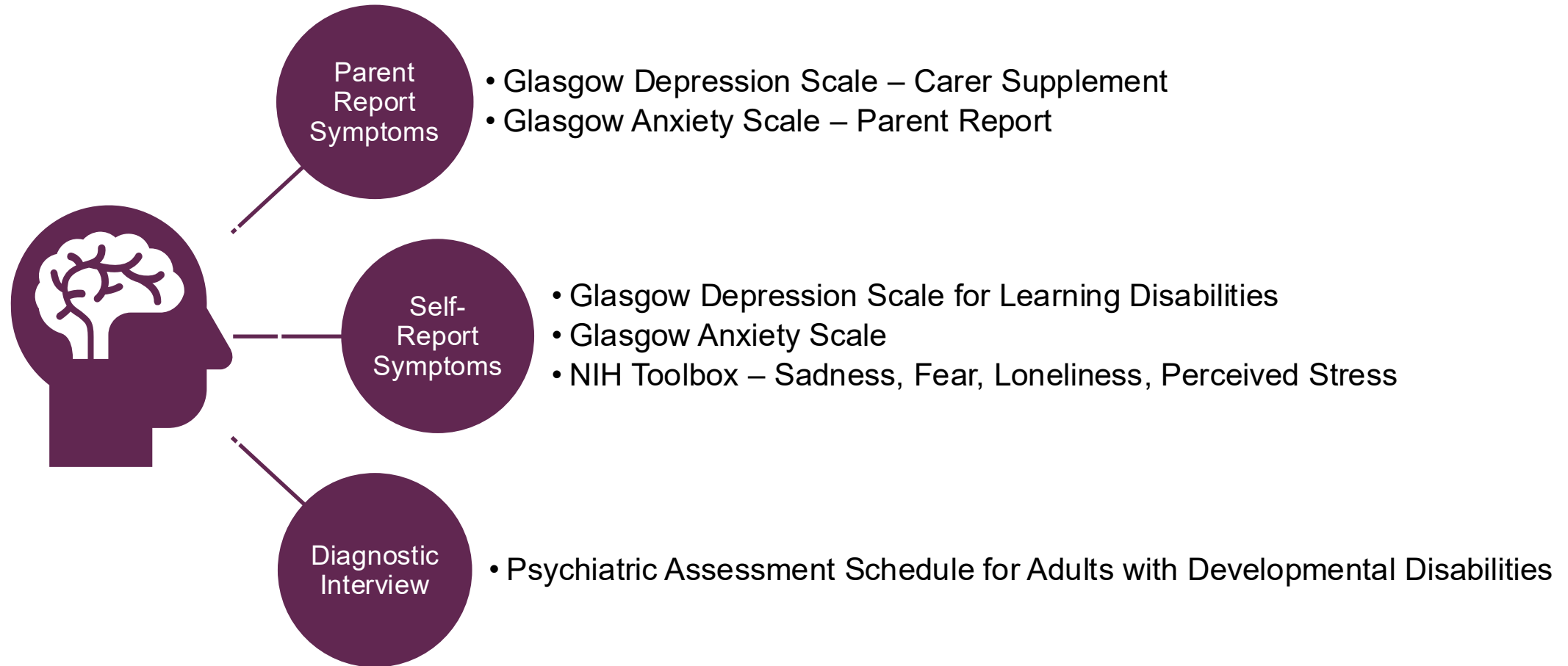
Major Goals of the LEAF Study

Are screening instruments valid for use with people with Down syndrome?

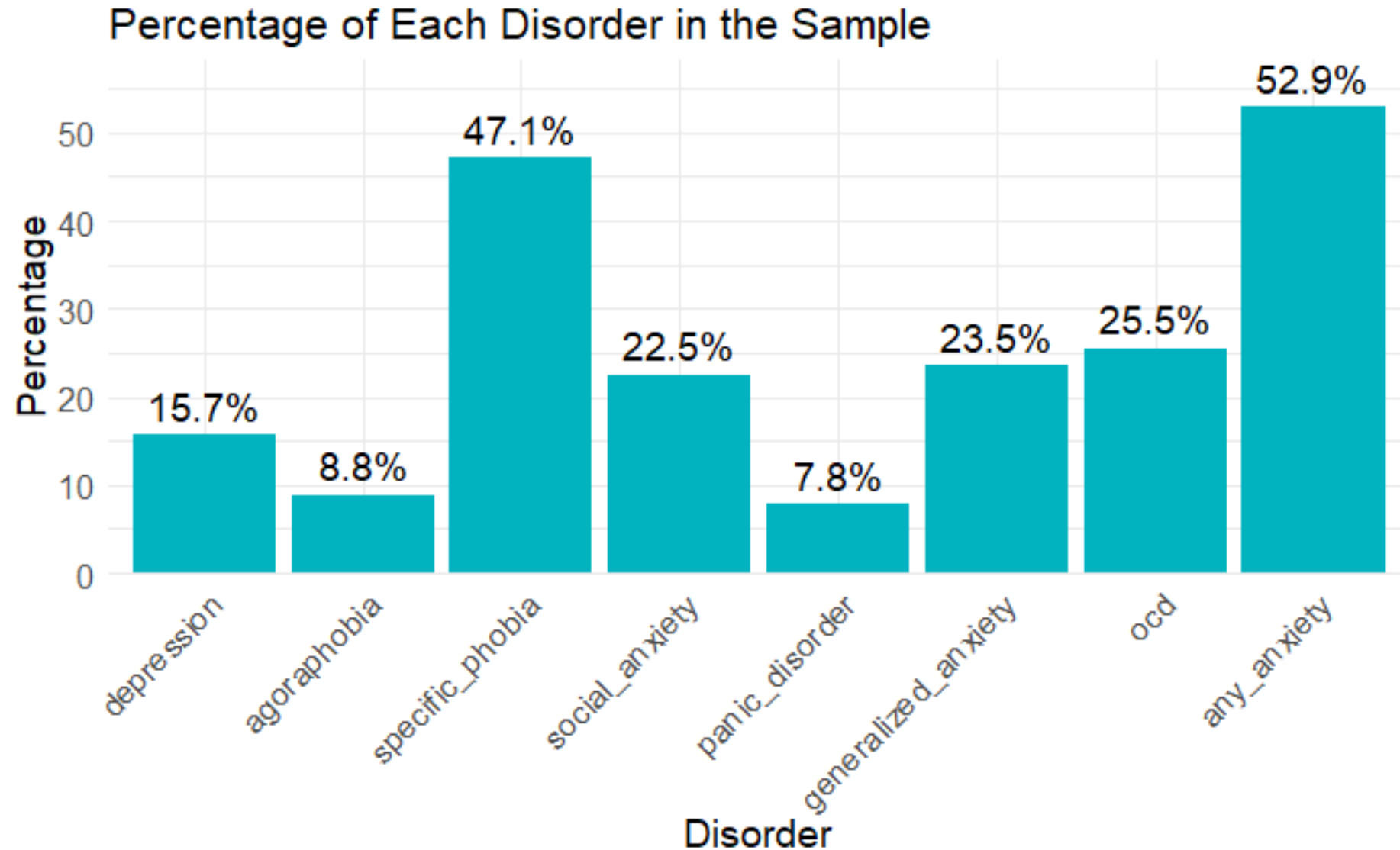
What is the prevalence of depression and anxiety among people with Down syndrome?

What role do stressful life experiences play in mental health for people with Down syndrome?

How We Measured Mental Health



Participants who met diagnostic criteria for anxiety or depression

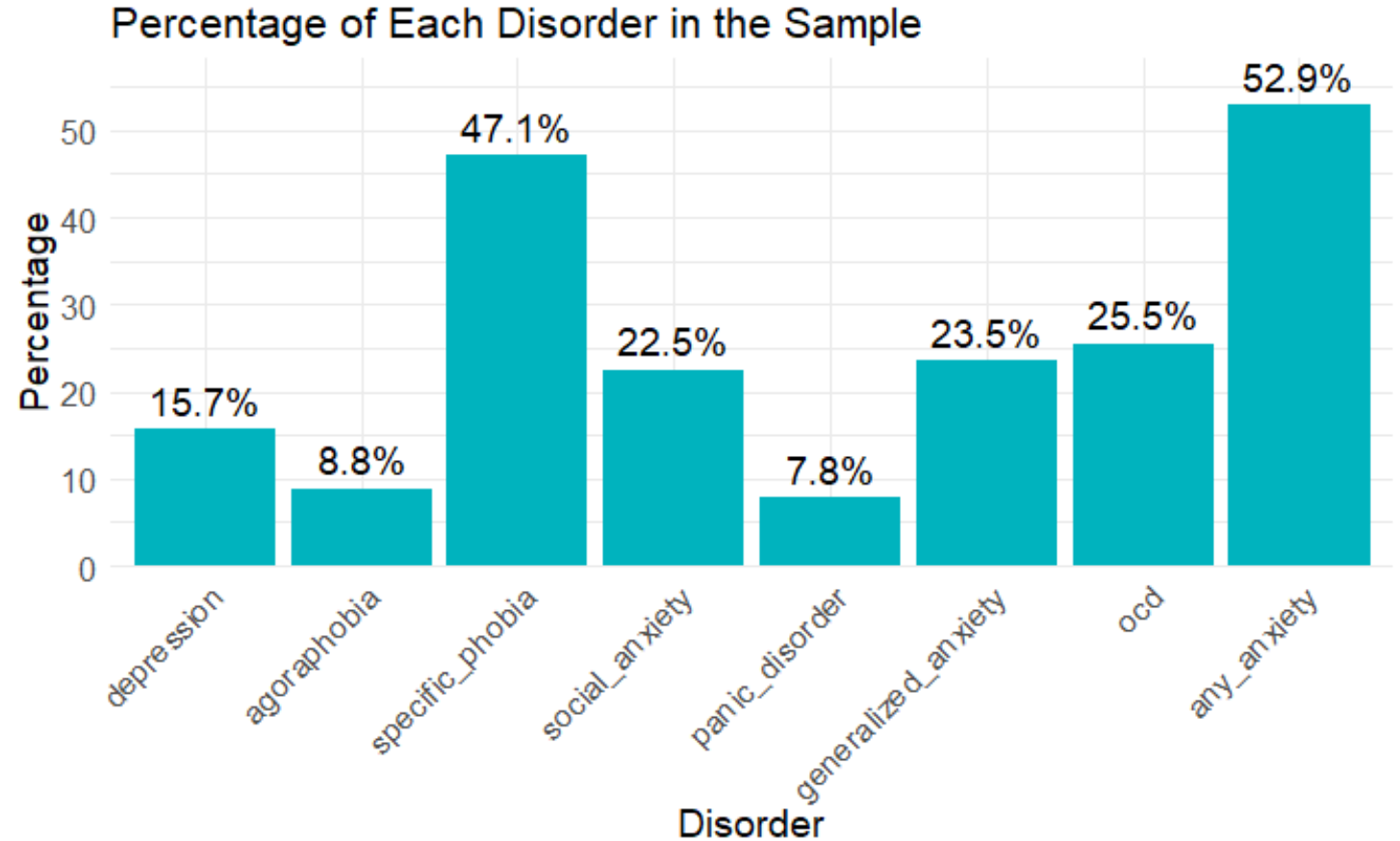


Participants who met diagnostic criteria for anxiety or depression



Only 31.2% of people meeting criteria for depression reported a previous diagnosis of depression.

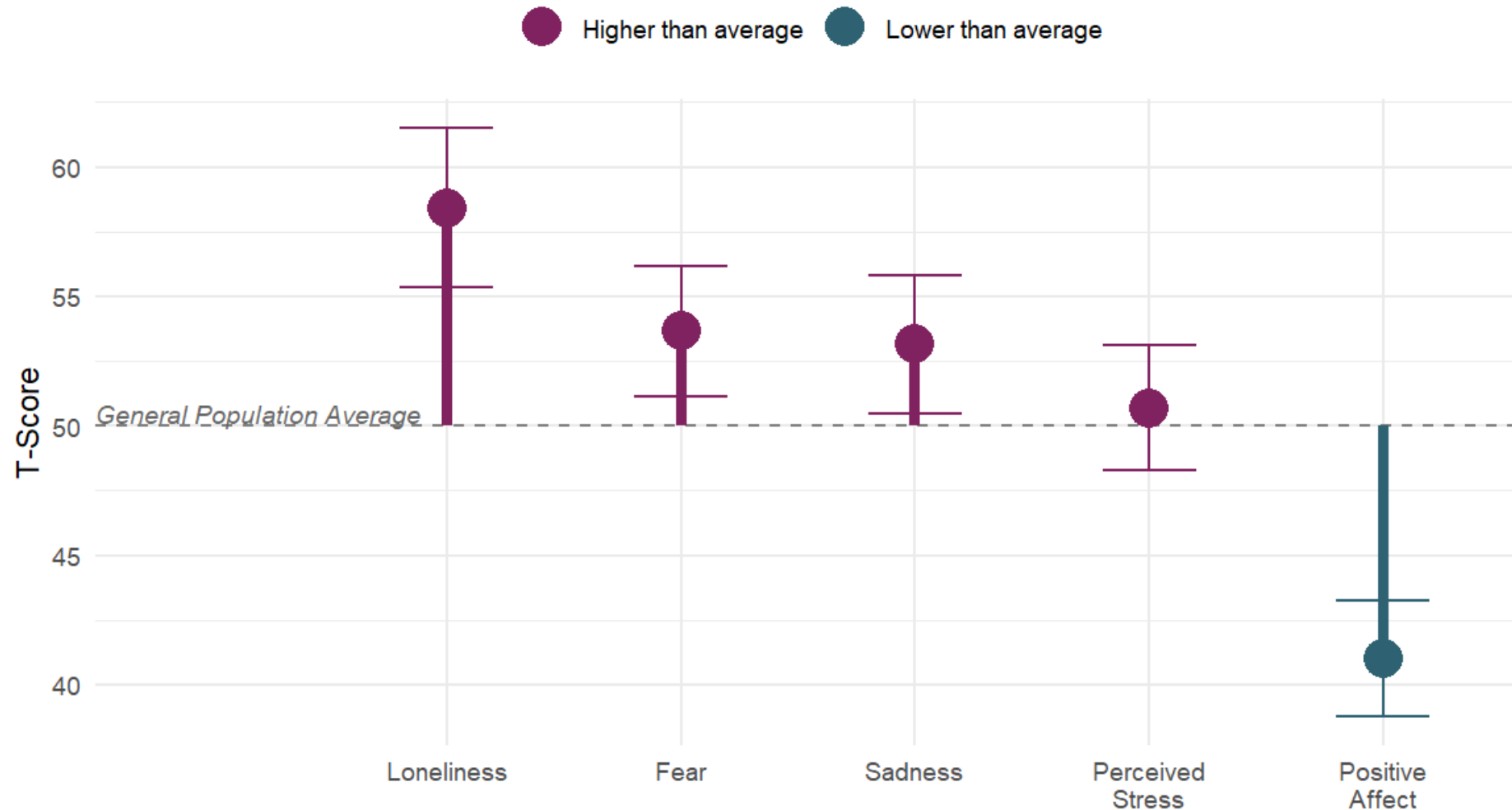
And only 31.4% of people meeting criteria for an anxiety disorder reported a previous diagnosis of anxiety.



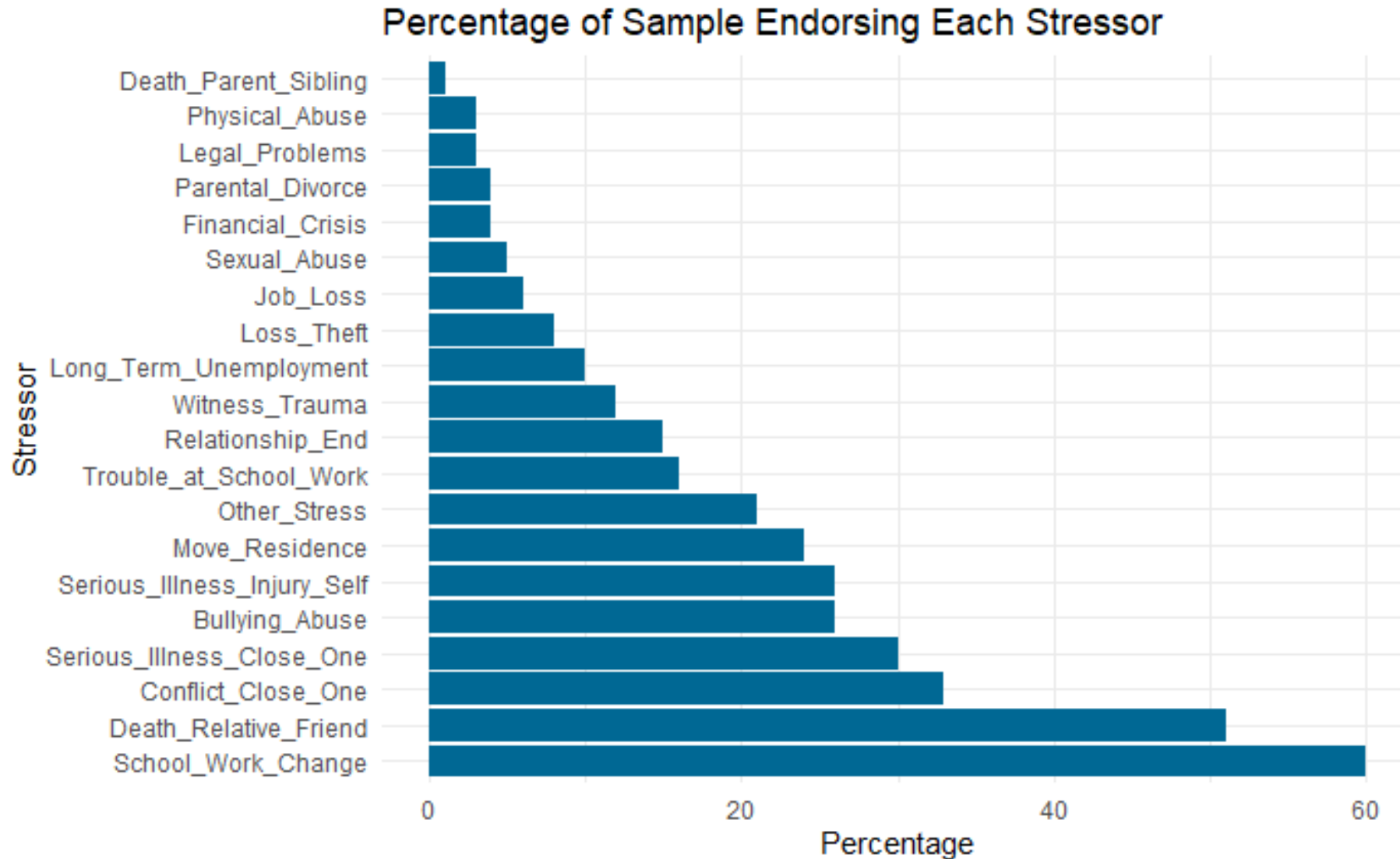
How do symptoms compare to people without Down syndrome?

Emotional Well-Being in Adults with Down Syndrome

Mean T-scores vs. general population norm (T = 50)



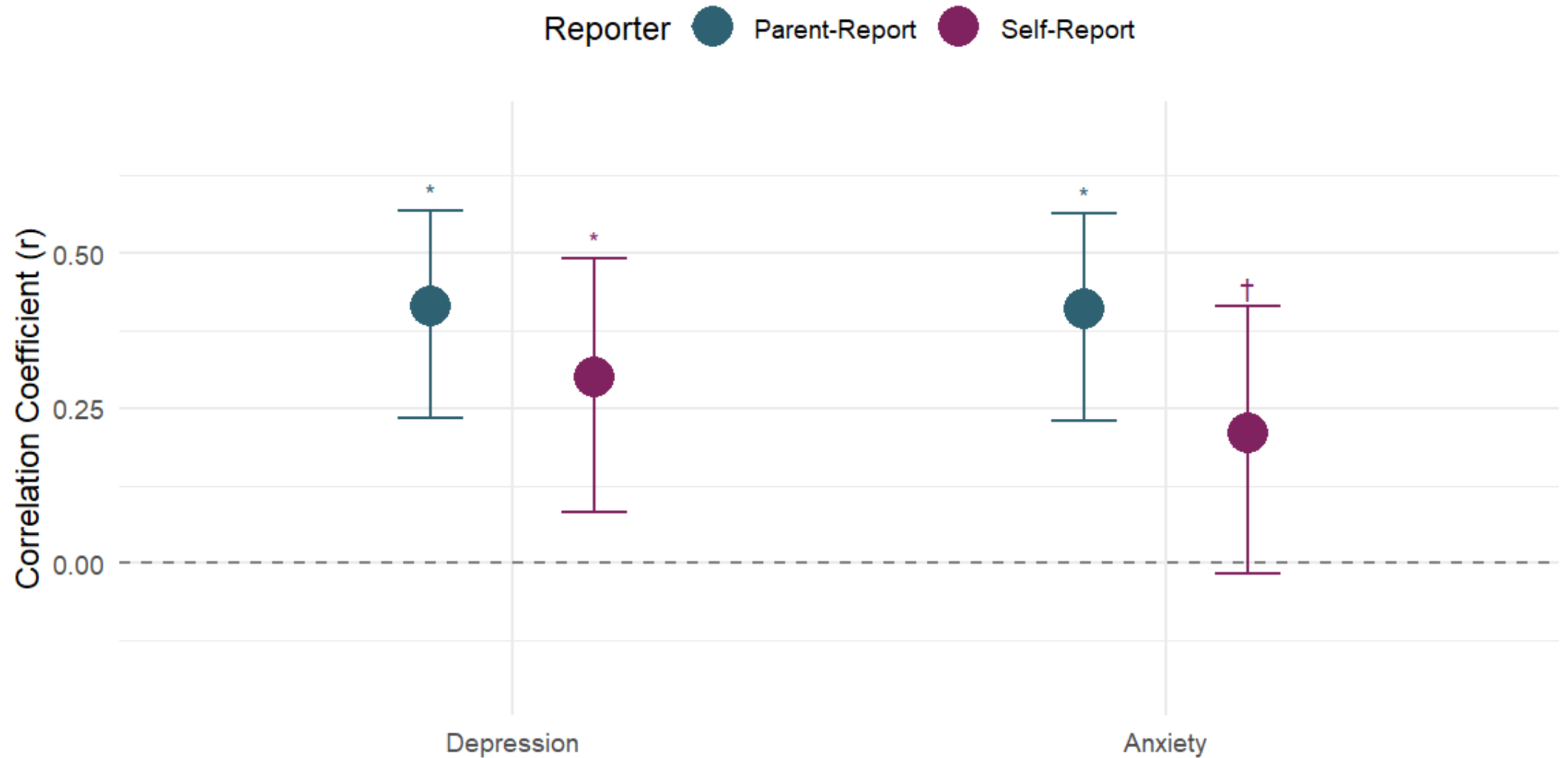
Stressful Life Experiences in Last Two Years




Stressful Life Events and Mental Health Symptoms

Correlation with total stressful life events (SLE)

* $p < 0.05$, † $p < 0.1$



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New Study on Down Syndrome Regression Disorder

Down Syndrome Regression Disorder

- First recognized over 20 years ago
- DSRD is associated with a rapid decline in cognitive and adaptive functioning, mood, and catatonia, potentially persisting for years without prompt treatment.
- The impact on caregivers is significant.
- Full recovery is uncommon.



DOWN SYNDROME REGRESSION DISORDER

"I think people just might have a bias that, well, this person already has a disability, so it's not as important."

— Dr. Eileen Quinn, Sara Smythe's mother
via The Washington Post

Current Challenges

Underdiagnosis of DSRD

DSRD is likely underdiagnosed due to diagnostic overshadowing.. Parents often face obstacles in obtaining a diagnosis, with providers stating it is 'just Downs' despite acute presentations.

Difficulties in Obtaining Diagnosis

Parents frequently report challenges in convincing primary care physicians to recognize DSRD symptoms, leading to a lack of referrals for further evaluation.

Lack of Natural History Studies

The underdiagnosis of DSRD is exacerbated by the absence of natural history studies for individuals with Down syndrome during adolescence and adulthood, limiting understanding of DSRD.

Symptoms of DSRD, as described in literature

1. Altered mental status or behavioral dysregulation
<i>Anorexia/hyperphagia; confusion/disorientation; inappropriate laughter; encephalopathy</i>
2. Cognitive decline
<i>Apathy; abulia and/or avolition; acute memory impairment</i>
3. Developmental regression
<i>Social withdrawal; loss of acquired milestones; inability to perform activities of daily living; stereotypy; rigidity around routine changes; decreased eye contact</i>
4. New focal neurologic deficits and/or seizure
5. Insomnia or circadian rhythm disruption
6. Language deficits
<i>Expressive/receptive aphasia; global aphasia; whispered speech</i>
7. Movement disorder (excluding tics) *
<i>Catatonia; bradykinesia; freezing; gait disturbance</i>
8. Psychiatric symptoms
<i>Anxiety; delusions/hallucinations; derealization/depersonalization; obsessive compulsive tendencies; aggression, agitation</i>
<i>Note: Onset of new symptoms over a period of <12 weeks. *Requires presence of movement disorder. 3-5 symptom clusters indicate "possible" DSRD. 6+ symptom clusters indicate "probable DSRD". Symptoms cannot be accounted for by another medical or psychiatric condition.</i>

Assessment and Diagnosis of Down Syndrome Regression Disorder: International Expert Consensus

Jonathan D. Santoro^{1,2*}, Lina Patel³, Ryan Kammeyer⁴, Robyn A. Filipink⁵, Grace Y. Gombolay⁶, Kathleen M. Cardinale⁷, Diego Real de Asua⁸, Shahid Zaman⁹, Stephanie L. Santoro¹⁰, Sammer M. Marzouk¹⁰, Mellad Khoshnood¹, Benjamin N. Vogel², Runi Tanna², Dania Pagarkar², Sofia Dhanani², Maria del Carmen Ortega¹¹, Rebecca Partridge¹², Maria A. Stanley¹³, Jessica S. Sanders¹⁴, Alison Christy¹⁵, Elise M. Sannar^{3,16}, Ruth Brown¹⁷, Andrew A. McCormick⁵, Heather Van Mater¹⁸, Cathy Franklin¹⁹, Gordon Worley²⁰, Eileen A. Quinn²¹, George T. Capone^{22,23}, Brian Chicoine²⁴, Brian G. Skotko^{10,25} and Michael S. Rafii^{2,26}

Diagnosis of Exclusion

Work up (for exclusion):

- **MRI**
- **Bloodwork**
- **Urine tests**
- **Lumbar puncture**
- **EEG**
- **Genetic or metabolic testing**
- **Polysomnography**

May cost \$11,000+

(FairHealthConsumer.org)

We need reliable ways to rapidly screen for DSRD!

Development of the Down Syndrome Regression Rating Scale



Funded through the National Institutes of Health, Down Syndrome INCLUDE Project.

1. Develop and test a screening questionnaire for DSRD.
2. How well does it distinguish between people with and without DSRD?
3. Exploratory aims:
 - a. Can we identify risk factors for DSRD, such as early life stress, recent stress, co-occurring health conditions, etc?

Goal: Low-burden, patient-reported measure for precision phenotyping in psychiatric genetics.

Collaborators



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VCU, VIPBG



Ananda Amstadter, PhD

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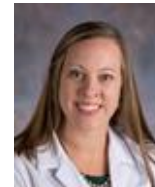
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Phase 1: Delphi Method to Refine Wording

Individual cognitive interviews of 20 parents of people with and without DSRD and clinicians with and without experience with DSRD.

Asked to “think aloud” while answering questions to ensure face validity.

Repeat until all items are clear before large scale testing.

Valuable Insight into Patient and Family Experience



Phase 2: Refining the Questionnaire – About to launch!

Refining the Questionnaire (400 participants)

- We are testing our draft list of questions to see which ones are the most helpful and which ones can be cut.

Proving the Tool's Accuracy (Construct Validity) We need to ensure our new scale actually measures exactly what it is supposed to measure. We do this in three ways:

- Checking for Agreement:** Does our new tool give similar results to older, established tests that look at the same symptoms?
- Checking for Distinctions:** Does our tool successfully ignore unrelated issues? We want to be sure it isn't accidentally measuring something else.
- Comparing Groups:** Can our tool clearly score the difference between a group we *know* has the condition and a group we *know* doesn't?

Item no.	Compared to their baseline (or "best self") has this person:	No change	Slight	Moderate	Marked	Severe
1	Had changes in their eating habits, such as eating less than usual, eating more slowly, new/increased difficulty chewing or swallowing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Had an unintentional or unexplained change in weight?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Seemed confused or disoriented, even in familiar places?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Had new or increased laughing for no reason or at times that don't make sense?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Had new or increased trouble solving problems or completing multiple step tasks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Had less interest or excitement in things they would typically enjoy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Had new or increased difficulty expressing preferences or choices (e.g., deciding what to wear, what to eat, where to go)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Had new or increased difficulty starting familiar tasks, such as eating, brushing teeth, getting dressed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Had new or increased difficulty in their ability to recall or retain new information?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Had new or increased periods of isolating themselves or spending less time with others, including family and/or friends?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Had a decrease in skills or abilities they used to have (e.g., reading, dressing, speaking, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Had new or increased difficulty with daily tasks like dressing, eating, or bathing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Had new or increased difficulty with bowel or bladder control?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	Had new or increased difficulty with steps involved in using the bathroom, such as	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Key Takeaways

- Anxiety and Depression are common
 - Often goes unrecognized
- Stress impacts the mental health of people with Down syndrome
- Down Syndrome Regression Disorder is a significant concern.
- We need more research on causes and treatments of mental health problems
 - We need validated tools to make sure people get screened and to test whether treatments work
- We need diverse families to participate in research to help us improve the lives of people with Down Syndrome.



Project HOPE

Down Syndrome Parent Perspectives Survey

What's Involved

- 30-60 minute survey questions about your loved one's mental health, development, and behavior.
- Participate online or over the phone.

Who's Eligible

Parents or legal guardians of a person with Down syndrome aged 10-30.

Contact Ruth Brown, PhD at ruth.brown@vcuhealth.org for questions.



Volunteers Needed

For an online research study to develop a new screening measure of health and behavior.



Sign Up:
http://tiny.cc/HOPE_regression

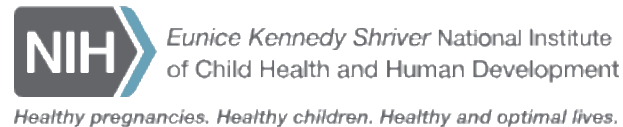


Thank you!

Families and Self-Advocates

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- NICHD R01



K08 Mentorship Team

- Ananda Amstadter, PhD
- Colleen Jackson-Cook, PhD
- George Capone, MD
- Steven Aggen, PhD
- Timothy York, PhD
- Jennifer Accardo, MD

R01 Co-Investigators

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- Jonathan Santoro, MD
- Brian Skotko, MD
- Community Advisory Board



www.hope.lab.vcu.edu