

Where assessment and opportunity align for adults with ADHD



A REVISION OF THE LEADING ASSESSMENT OF ADHD AND ASSOCIATED CONCERNS IN ADULTS AGED 18 AND OLDER

DEVELOPED BY



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# About **CAARS**<sup>™</sup>2

MHS is proud to announce the arrival of the Conners Adult ADHD Rating Scales 2nd Edition (CAARS<sup>™</sup> 2), which builds upon the strong foundation provided by its predecessor, the world's leading Attention-Deficit/Hyperactivity Disorder (ADHD) assessment for adults. CAARS 2 is an even more comprehensive tool that, in conjunction with other sources of information, aids in the diagnostic process, treatment evaluation, and monitoring. This new edition provides updated, expanded, and reconceptualized scales and new scales to cover core symptoms of ADHD and its associated clinical concerns in adults 18 years and older.

### **QUICK** REFERENCE

Age Range: 18 years and older

**Rater Types:** Self-Report Observer

#### Form Types and Admin. Time:

CAARS 2: 10–20 minutes CAARS 2–Short: 5-10 minutes CAARS 2–ADHD Index: 1-3 minutes

Formats:

Administer and score online Print paper forms and score online

#### **Device Types:**

Computer Laptop Mobile device Tablet

#### Languages:

English Spanish (North America) French (Canada)

#### Average Reading Levels:

Self-Report – Grade 4 Observer – Grade 6

**Qualification Level:** B-level

### **NEW** FEATURES

### UPDATED AND EXPANDED NORMS

New normative data were derived from a large sample selected to be representative of the North American population based on the 2018 U.S. census and the 2016 Canadian census proportion (balanced equally by age and stratified by gender, race/ethnicity, education level, and geographic region). An ADHD Reference Sample has been added to allow examiners to compare scores to those produced by others already diagnosed with ADHD.

### **EXTENDED UPPER AGE RANGE**

The oldest normative sample age group in the original CAARS was 50 years and older. The CAARS 2 Normative Sample includes stratified samples for seven age groups, with an upward expansion to include 50–59, 60–69, and 70+ years to ensure precision when assessing older adults.

### **GENDER-INCLUSIVE LANGUAGE**

The CAARS 2 uses gender-inclusive language has non-binary gender options.

### **SPANISH AND FRENCH VERSIONS**

In addition to English, the CAARS 2 forms are available in Spanish (North America) and French (Canada). These versions are linguistically and culturally sensitive adaptations of the English forms.

### **MULTIPLE REFERENCE SAMPLES**

Examiners can now select reference samples from the General Population or individuals with ADHD. Both reference samples include the option to compare against a Combined Gender group, a Gender Specific–Males group, and a Gender Specific–Females group. The report allows a convenient side-by-side comparison of rater scores with multiple groups.

### INCREASED ALIGNMENT WITH CONNERS 4TH EDITION (CONNERS 4<sup>TM</sup>)

The CAARS 2 and Conners 4 (a measure of symptoms of and impairments associated with ADHD, along with common co-occurring problems and disorders for youth aged 6 to 18 years) were designed to be aligned and comparable to one another to facilitate a lifespan approach to ADHD assessment/monitoring and to simplify the integration of information as adolescents transition into adulthood.

### FLEXIBLE AND SIMPLIFIED PURCHASE OPTIONS

Each CAARS 2 purchase on the MHS Online Assessment Center+ can be used to generate reports for any of the CAARS 2 forms (Self-Report or Observer versions of the full-length CAARS 2, CAARS 2–Short, or CAARS 2–ADHD Index). This flexibility eliminates the need to monitor remaining balances for different forms. Reports can be generated multiple times at no additional charge.

### What is **ADHD**?

Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder with hallmark features, including high levels of inattention, hyperactivity, and impulsivity. It is often associated with other cognitive, social, and emotional difficulties, including problems with executive functioning and emotion regulation, disruptive and aggressive behavior, impairments in school and work, and adverse family and peer relationships.

ADHD is one of the most common childhood mental health disorders. But it is also well documented that ADHD symptoms persist into adulthood for most individuals diagnosed with ADHD in childhood. Broadly speaking, the core symptoms of ADHD are similar in adults and children, despite age-related changes in their expression and consequences. In fact, the symptom criteria for diagnosing ADHD in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision* (DSM-5-TR; American Psychiatric Association, 2022) are constant across the age range.

Left untreated, ADHD can lead to impaired social and emotional development and difficulty at home, school, work, and interactions with others. This risk underscores the need for comprehensive assessments that yield thorough symptom and impairment profiles, accurate diagnoses, and effective treatment plans.

### What is the **CAARS<sup>™</sup> 2**?

The CAARS 2 was designed to assess core and associated symptoms of ADHD in adults, aged 18 years and older. It is a revision of the Conners' Adult ADHD Rating Scales (CAARS™; Conners, Erhardt, & Sparrow, 1999).

The CAARS 2 retains key clinical content and DSM-based scales found in the original CAARS while adding several new or substantially updated features, including a Response Style Analysis section, Associated Clinical Concern Items (Critical and Screening Items), and Impairment & Functional Outcome Items (see Table I). Like its predecessor, CAARS 2 is designed to gather information from multiple sources, including the person being evaluated (Self-Report) and an individual who is familiar with the person being evaluated (Observer).

#### CAARS CAARS 2 CAARS Content 2-ADHD (full-length) 2–Short Index Self-Report 97 55 12 **Total Item Count** Observer 97 52 12 Negative Impression Index ~ ~ ---1 Inconsistency Index -----**Response Style Analysis** ./ ./ **Omitted Items** Pace (available for online administrations only) 1 1 Associated Clinical Critical Items (suicidal thoughts/attempts; self-injury) ~ ------~ **Concern Items** Screening Items (anxiety/worry; sadness/emptiness<sup>1</sup>) -------Inattention/Executive Dysfunction ./ 1 ---./ ./ Hyperactivity --**Content Scales**<sup>2</sup> Impulsivity 1 1 --~ 1 **Emotional Dysregulation** ---~ ~ Negative Self-Concept ---ADHD Inattentive Symptoms ------**DSM Symptom Scales** ADHD Hyperactive/Impulsive Symptoms 1 -----Total ADHD Symptoms ./ 1 1 CAARS 2-ADHD Index 1 ~ Impairment & Functional Outcome Items<sup>3</sup> ---Other Issues/Problems ---Additional Questions Strengths/Skills 1 ---

### Table I. Comparison of Content Across CAARS 2 Forms

'The Self-Report form asks about sadness or emptiness; the Observer form asks only about sadness.

<sup>2</sup>Content Scales on the CAARS 2–Short include a subset of items from the full-length forms.

<sup>3</sup>Item-level assessment of impairment from ADHD and related features, including general impairment and adverse functional outcomes in specific areas (e.g., relationships, sleep, risky behaviors).





### Highly Representative Normative Samples

A total of 2,640 individuals were included in the Normative Sample (N = 1,320 each for Self-Report and Observer) and served as the comparison point for the CAARS 2 scores. The CAARS 2 Self-Report and Observer Normative Samples each comprise 1,200 respondents from the U.S. and 120 respondents from Canada, reflecting the ratio of the total U.S. population to the total Canadian population (10:1).

The Normative Sample was collected to match the demographic characteristics of each respective country. The target demographic characteristics of the U.S. portion of the Normative Sample were based on the 2018 American Community Survey (United States Census Bureau, 2019). The target demographic characteristics of the Canadian portion of the Normative Sample were based on the 2016 National Census Profile (Statistics Canada, 2017). For each sample, the target demographic variables of age, gender, race/ethnicity, geographic region, education level, and clinical status were collected using a stratified sampling plan to ensure that both the U.S. and Canadian portions of the Normative Sample represented the broader, national populations from which they were drawn.

### Reliability

The CAARS 2 Self-Report and Observer scale scores have excellent internal consistency (median omega coefficient = .94 for Self-Report and .95 for Observer), strong test-retest reliability (median r = .92 for Self-Report and .84 for Observer), and moderate inter-rater reliability (median r = .44 to .54, depending on nature of the relationship), which is expected given the different perspectives from multiple raters. Standard error of measurement (SEM) is low for all CAARS 2 T-scores (median SEM = 2.52 for Self-Report and 2.27 for Observer), indicating very little error in the estimated true scores and high precision. Similarly strong evidence of reliability was found for the CAARS 2–Short and CAARS 2–ADHD Index.



**Differences in CAARS** 2 Self-Report Scores: ADHD vs. General

Note. INA/EDF = Inattention/ Executive Dysfunction; HYP = Hyperactivity; IMP = Impulsivity; EM DYS = Emotional Dysregulation; NEG SC = Negative Self-Concept; ADHD-I = ADHD Inattentive Symptoms; ADHD-HI = ADHD Hyperactive/Impulsive Symptoms; ADHD-TOT = Total ADHD Symptoms.

### Validity

Results from confirmatory factor analyses (CFA) provided evidence to support the internal structure of the CAARS 2 scales (5-factor model fit best; CFI  $\geq$  .943, RMSEA  $\leq$  .047, loadings > .400).

Evidence for the relationship to other measures supported the convergence of constructs (median correlations with measures of ADHD and impairment ranged from .48 to .83).

The CAARS 2 demonstrated a high degree of criterion-related validity as various clinical groups had distinctly different profiles of scores (e.g., very large median effect size estimates for the difference between individuals with ADHD and individuals from the general population [Cohen's d = 2.24 for Self-Report, see Figure 1; and Cohen's d = 1.29 for Observer]), and scores from the CAARS 2 were able to correctly classify individuals from the General Population and those from clinical samples into their respective groups (overall correct classification statistics ranged from 84.7% to 92.5% across forms).

### Fairness

There is strong evidence that the CAARS 2 meets or exceeds the fairness requirements outlined in the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014). When investigating differences by gender, race/ethnicity, country of residence, and education levels, (a) there was sufficient evidence of equivalence of the factor models, (b) no evidence of meaningful differential test functioning between groups, and (c) negligible to small differences in average scores between groups (median Cohen's d = 0.06 across raters and all group comparisons). The absence of statistical bias and the lack of significant group differences provides strong evidence for the fair use and interpretation of the CAARS 2 scores.



Expanded and enhanced validity scales within a new **Response Style Analysis** section that includes: (a) a new Negative Impression Index (designed to identify ratings that may be unrealistically negative or problem descriptions that may be exaggerated), (b) an improved Inconsistency Index (to capture inconsistent responding), and (c) other new metrics, such as Omitted Items (the total number of items that the rater omitted when completing the CAARS 2) and Pace (available for online administrations only; captures the average number of items completed per minute).

**New Associated Clinical Concern Items** have been added to screen for issues that may require clinical follow-up (i.e., suicidality, self-harm, anxiety, sadness).

The new **Inattention/Executive Dysfunction Scale** expands upon the former Inattention/Memory Problems scale to better represent a range of executive function deficits that are often experienced by individuals with ADHD.

The original Hyperactivity/Restlessness scale has been relabeled the **Hyperactivity Scale** and retains items covering subjective restlessness, while also including items capturing verbal and motoric hyperactivity.

The previous Impulsivity/Emotional Lability scale has been split into distinct **Impulsivity** and **Emotional Dysregulation** scales to examine each area in greater depth.

The revised **Negative Self-Concept Scale** includes new content to capture the self-esteem struggles often experienced by individuals with ADHD, expanding the utility of the original Problems with Self-Concept scale.

DSM Symptom Scales have been updated and aligned with current DSM-5-TR symptom criteria.

The **CAARS 2–ADHD Index** has been enhanced to better differentiate between individuals with ADHD and those without ADHD by improving its sensitivity and specificity.

New **Impairment & Functional Outcome Items** were created to assess difficulties in functioning and adverse outcomes related to specific tasks (e.g., money management, driving) and broad domains (e.g., work, school, relationships).

Two new open-ended **Additional Questions** were added to elicit rater comments about other issues/problems and strengths/skills that may not have been captured by CAARS 2 items.

## About the **Authors**

### C. Keith Conners, Ph.D.

Dr. Conners had an extraordinary and diverse career as an academic, clinician, researcher, lecturer, author, editor-inchief, and administrator. His dedication to the study of ADHD and other childhood problems propelled him to the forefront of his field. His intense interest in this topic led him to write several books on attention disorders and neuropsychology, as well as hundreds of journal articles and book chapters based on his research on the effects of food additives, nutrition, stimulant drugs, diagnosis, and dimensional syndromes. He is highly recognized in the field of psychology for his numerous contributions. Dr. Conners passed away in 2017; however, his legacy lives on through the advancements he made in ADHD research, assessment, and treatment over his prolific career.

### Drew Erhardt, Ph.D.

Dr. Erhardt is a licensed clinical psychologist and Professor of Psychology at Pepperdine University. After completing a postdoctoral fellowship at UCLA, he joined the Psychiatry faculty at Duke University where he served as a Co-Investigator and Therapist-Consultant on the seminal MTA ADHD treatment study and provided comprehensive assessments and evidencebased treatments through the Duke ADHD Clinic, directed by Dr. Conners. In addition to co-developing the CAARS, he has served on the editorial board of the Journal of Attention Disorders, conducted child psychopathology and ADHD-related workshops for mental health professionals, provided training for assessing ADHD and treatment effects in pharmaceutical trials, and co-authored the book, Essentials of ADHD Assessment for Children and Adolescents, along with numerous journal articles and book chapters related to the assessment and treatment of the disorder.

### Elizabeth P. Sparrow, Ph.D.

Dr. Sparrow is a licensed psychologist in North Carolina, specializing in clinical neuropsychology. Following post-doctoral training at Johns Hopkins/Kennedy Krieger Institute, she founded Sparrow Neuropsychology to provide clinical services. She is passionate about accurately identifying needs and strengths to inform appropriate interventions. Past collaborations with MHS have included co-creating the Conners Adult ADHD Rating Scales and serving as lead clinical consultant for development of the Conners 3, Conners CBRS, and Conners EC. She co-authored Essentials of ADHD Assessment for Children and Adolescents and Guide to Assessment Scales in ADHD (2nd ed.), co-edited Executive Function and Dysfunction, and authored Essentials of Conners Behavior Assessments. Other professional activities include leading skillbased workshops, creating and delivering clinician training within pharmaceutical trials, and providing case consultations to colleagues.

Beyond Assessments



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