Toward Operationalizing Executive Function Deficits in Adults With ADHD Using the Behavior Rating Inventory of Executive Function—Adult Version (BRIEF-A)

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ABSTRACT

Objective: Although group findings document that executive function deficits (EFDs) contribute to the morbidity associated with adult attention-deficit/hyperactivity disorder (ADHD), it is unclear whether easy-to-use assessment methods can aid in the identification of EFDs at the individual level. The aim of the present study was to assess whether the Behavior Rating Inventory of Executive Function—Adult Version (BRIEF-A), a well-standardized, self-report instrument that assesses behavioral concomitants of EFDs, can serve that purpose.

Methods: 1,090 consecutively referred 18- to 55-year-old adults of both sexes who were clinically referred for the evaluation and treatment of ADHD between June 2016 and December 2021 completed a battery of scales assessing several non-overlapping domains of functioning. Because the BRIEF Global Executive Composite (GEC) offers a single point summary of all other BRIEF-A scales, we used receiver operator characteristic (ROC) curves to identify the optimal cutoff on the BRIEF-A GEC to categorize patients as having executive dysfunction.

Results: We averaged the optimal BRIEF-A GEC cut-points from the ROC curve analyses to categorize patients with (N = 480; 44%) and without (N = 610; 56%) EFDs (BRIEF-A GEC score ≥ 70 or < 70, respectively). Adults with ADHD with EFDs had significantly more severe ADHD symptoms (ADHD Self-Report Scale scores ≥ 24: 94% vs 41%, $P < .001$); higher levels of psychopathology (Adult Self Report Total Problems T-scores ≥ 64: 75% vs 19%, $P < .001$), emotional dysregulation (69% vs 23%, $P < .001$), mind wandering (84% vs 48%, $P < .001$), and symptoms of autism (Social Responsiveness Scale T-scores ≥ 66: 24% vs 3%, $P < .001$); and worse quality of life (Quality of Life Enjoyment and Satisfaction Questionnaire mean scores: 44.4 ± 8.2 vs 51.9 ± 8.5, $P = .001$) compared to those without EFDs. There were no major differences in outcomes by age, sex, or race.

Conclusions: The BRIEF-A helped identify a sizeable minority of adults with ADHD with behavioral concomitants of EFDs that added substantial morbidity and disability beyond that expected by having ADHD alone.

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One of the key sources of morbidity associated with attention-deficit/hyperactivity disorder (ADHD) is deficits in a group of related but distinct high order cognitive functions known as executive functions (EFs),[1–8] that provide for intentional, goal-directed, problem-solving actions. Specific areas of EFs include initiation, inhibition, shifting, planning, organization, emotional control, and working memory.

Using a battery of neuropsychological testing, our group documented that 31% of adults with ADHD had executive function deficits (EFDs) and those with them had significantly lower socioeconomic status and educational and occupational attainment than other adults with ADHD.[9]

Considering the morbidity associated with EFDs in adults with ADHD, the development of easy-to-use assessment tools aimed at the identification of EFDs in adults with ADHD is an area of high clinical, public health, and scientific significance. Such an approach would be extremely beneficial to clinicians treating adults with ADHD and could aid in treatment planning for interventions to remediate academic areas or occupational pursuits in individuals with ADHD. Finally, distinguishing between ADHD adults with and without EFDs may assist in neurobiological and treatment research in this area.

We showed that adults with ADHD with high scores on Barkley's Current Behavior Scale (CBS)[10] had lower levels of education and occupation[11;] because the CBS is a general measure of psychopathology, it is unclear whether the findings reflected overall psychopathology rather than specifically EFDs, calling for more research on the subject.

In recent years, the advent of the Behavior Rating Inventory of Executive Function—Adult Version (BRIEF-A) has improved the assessment of behavioral concomitants of EFDs in clinical practice due to its strong, empirically derived psychometric properties. The BRIEF-A is a self-report scale with excellent normative data for age and sex. It provides T-scores (mean = 50, SD = 10) that are used to interpret the individual level of executive functioning for 9 clinical scales (Inhibit, Self-monitor, Plan/Organize, Shift, Initiate, Task Monitor, Emotional Control, Working Memory, and Organization of Materials) that measure different aspects of EFDs.

Clinical Points

- It is unclear whether easy-to-use behavioral measures can aid in the identification of executive function deficits (EFDs) at the individual level.
- The BRIEF-A, a behavioral measure of EFDs, identified an important subgroup of ADHD patients at risk for added morbidity and dysfunction, supporting efforts to target EFDs in the overall management strategies for this group of patients.

The clinical scales form 2 broader indexes: the Behavioral Regulation Index (BRI) and the Metacognition Index (MI), and these combine to form the overall summary, the Global Executive Composite (GEC).

The main aim of this study was to evaluate the utility of the BRIEF-A to help identify adults with ADHD with behavioral concomitants of EFDs. Because the BRIEF-A GEC provides a single point summary of all the BRIEF-A scales, we used ROC curve and conditional probability analyses to identify the best cutoff on the BRIEF-A GEC to define the presence of EFDs in an individual with ADHD. We then compared functional outcomes in a large sample of adults with ADHD stratified by the optimal GEC T-score. We hypothesized that ADHD adults with BRIEF-A–defined presence of behavioral concomitants of EFDs would be at high risk for additional morbidity and dysfunction beyond what can be expected by ADHD alone.

METHODS

Sample

The sample consisted of 1,090 consecutively referred adults 18–55 years of age of both sexes who were clinically referred for the evaluation and treatment of ADHD between June 2016 and December 2021. There was no selection bias based on social class or insurance restrictions. We received institutional review board approval to review, analyze, and report anonymously on these subjects. Under this approval, informed consent was not required given that the data were collected as part of clinical intake procedures.

Assessment Procedures

Patients completed a battery of rating scales before their initial evaluation to assess common areas of difficulties in adults with ADHD. The assessment battery included the BRIEF-A,[12] the Adult Self Report (ASR),[13] the Adult ADHD Self Report Scale (ASRS),[14,15] the Social Responsiveness Scale—Adult form (SRS),[16] the Barkley Emotional Dysregulation Scale,[7,17] the Mind Wandering Questionnaire (MWQ),[18] and the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q).[19]

The BRIEF-A is a 75-item patient-rated questionnaire to assess behavioral concomitants of EFDs within the past month.[12] Raw scores are calculated and used to generate T-scores for 9 scales, 2 summary index scales, and 1 total scale reflecting overall functioning. A T-score ≥ 65 (≥ 1.5 SDs) is used as the clinical cutoff in each domain.

The ASR is a 126-item self-rated assessment of adult psychopathology, social competence, and substance use.[13] Raw scores are calculated and used to generate T-scores for 8 clinical scales, 2 composite scales, 1 total scale, 6 adaptive functioning scales, and 3 substance use scales. The clinical cutoffs are defined as T-scores ≥ 70 for the clinical scales and substance use scales, T-scores ≥ 64 for the composite and total scales, and T-scores ≤ 30 for the adaptive functioning scales.

The ASRS is an 18-item patient-rated questionnaire to determine severity of ADHD symptoms.[14,15] Subdomain scores (Inattentive and Hyperactive/Impulsive) can range from 0 to 36, and patients with a score of ≥ 24 are highly likely to have ADHD.

Because of previous findings documenting that a sizeable minority of individuals with ADHD manifest symptoms of autism in the absence of a full diagnosis of autism spectrum disorder[20] and that their presence adds morbidity to the clinical picture of ADHD, particularly in the social domain, we incorporated the SRS to assess symptoms of autism. The SRS-2 Adult form is a 65-item self-rated assessment used to measure the severity of autism spectrum symptoms.[16] Raw scores are calculated and used to generate T-scores for 5 subscales and 1 total scale. T-scores ≥ 66 are considered in the moderate to severe range.

Because of emerging data documenting that a sizeable proportion of individuals with ADHD suffer from emotional dysregulation and, when present, it represents a source of added morbidity,[21] we incorporated an assessment of emotional dysregulation using Barkley's Emotional Dysregulation Scale, a subset of 8 questions from the CBS.[7,17] Total scores range from 0 to 24, and scores ≥ 8 are categorized as high-level emotional dysregulation.[21]

Likewise, because of the increasing recognition of mind wandering as another source of unique morbidity in ADHD,[22] we assessed mind wandering using the MWQ, a 5-item scale that assesses mind wandering traits.[18] Total scores range from 5 to 30, and scores ≥ 24 are categorized as high-level mind wandering.[22]

The assessment of quality of life relied on the Q-LES-Q, a self-rated 16-item rating scale to assess enjoyment and satisfaction levels in various areas of daily life.[19] The total score is calculated by summing the first 14 items, and scores can range from 14 to 70.

In addition to the rating scales, patients completed forms regarding demographic characteristics, current treatments for ADHD and other psychiatric disorders, and previous psychiatric diagnoses.

Statistical Methods

Given that the BRIEF-A GEC score provides a single point overall summary that incorporates all the BRIEF-A clinical scales and reflects overall executive functioning, we used this scale to identify patients with executive dysfunction. We used receiver operator characteristic (ROC) curves to

Table 1. ROC Curve and Conditional Probability Analyses to Identify the Optimal T-Score Cutoff Point of the BRIEF GEC Using Clinical Scores on Scales Measuring ADHD Symptomatology, Autism Spectrum Disorder (ASD) Symptomatology, and Psychopathology

Rating Scale	Rating Scale Clinical Scores	AUC Statistic	BRIEF GEC Optimal T-Score Cut-Point[a]	Sensitivity (%)	Specificity (%)	Positive Predictive Value (%)	Negative Predictive Value (%)	Correctly Classified (%)
ADHD symptomatology								
ASRS Total	≥ 24 in either subdomain	0.90	≥ 64	86	78	88	76	84
ASRS Inattention	≥ 24	0.89	≥ 64	87	76	86	78	83
ASRS Hyperactivity	≥ 24	0.80	≥ 71	76	72	52	88	73
ASD symptomatology								
SRS Total	≥ 60	0.84	≥ 71	80	72	49	91	74
SRS Total	≥ 66	0.84	≥ 76	75	79	33	96	78
Psychopathology								
ASR Total	≥ 64	0.86	≥ 70	76	81	76	82	79
ASR Externalizing	≥ 64	0.83	≥ 74	71	78	48	91	77
ASR Internalizing	≥ 64	0.77	≥ 70	69	72	62	78	71
ASR Attention problems	≥ 70	0.89	≥ 68	83	77	76	84	80

[a]Average optimal BRIEF GEC cut-point = 70.
Abbreviations: ADHD = attention-deficit/hyperactivity disorder, ASR = Adult Self Report, ASRS = Adult ADHD Self Report Scale, AUC = area under the curve, BRIEF = Behavior Rating Inventory of Executive Function, GEC = Global Executive Composite, OCD = obsessive-compulsive disorder, PTSD = posttraumatic stress disorder, SRS = Social Responsiveness Scale—Adult form.

examine the ability of the BRIEF-A GEC scale to identify ADHD adults with and without clinical impairment on the ASRS, SRS, and ASR. Based on the information from the ROC curve analysis, we used the Liu approach[23] to calculate the optimal cut-point on the BRIEF-A GEC scale to identify those with and without impairment on each rating scale and used conditional probabilities to examine the diagnostic utility of those optimal cut-points. We then averaged the optimal cut-points across all the rating scales and used it to categorize patients in our sample with and without EFDs.

We compared demographic characteristics of those with and without EFDs using *t* tests and Pearson χ^2 tests. Rates of clinical impairment on each rating scale and current psychiatric medications were analyzed using logistic or Firth logistic regression models. The total score on the Q-LES-Q was analyzed using a truncated Poisson regression model with a lower limit of 14 and an upper limit of 70 for truncation. Individual items on the Q-LES-Q were analyzed using ordinal logistic regression models. The numbers of impaired scales on the BRIEF, ASR, and SRS were also analyzed using truncated Poisson regression models with upper limits for truncation of 9, 8, and 5, respectively. We examined the moderating effects of age, sex, and medication status on the relationships between EFD status and our functional outcomes by individually adding interaction terms (EFD status-by-age, EFD status-by-sex, and EFD status-by–medication status) to each regression model. All analyses controlled for age and race given the significant differences between those with and without EFDs. All tests were 2-tailed and performed using Stata (Version 17.0).[24] Tests were performed at the 0.05 α level for the primary analyses and at the 0.01 α level for analyses examining moderating effects of age, sex, race, and medication status. Descriptive statistics are presented as means ± SDs or counts and percentages.

RESULTS

Receiver Operator Characteristic Curve Analysis

Of all the clinical scales used (Table 1), the BRIEF-A GEC scale best identified clinical impairment on the ASRS Total Scale (area under the curve [AUC] = 0.90). Of the 9 subscales examined, the lowest optimal BRIEF-A GEC scale cut-point was 64 and the highest was 76 (Table 1). Sensitivity ranged from 69% (ASR Internalizing) to 87% (ASRS Inattention), and specificity ranged from 72% (ASRS Hyperactivity, ASR Internalizing, and SRS Total ≥ 60) to 81% (ASR Total). Based on the ROC curve analyses, we averaged the optimal BRIEF-A GEC scale cut-points across all subscales and categorized patients with (N = 480) and without (N = 610) EFDs, as defined by having a BRIEF-A GEC scale T-score of ≥ 70 or < 70, respectively. Subsequent comparisons were made between subjects with and without EFDs.

Demographic Characteristics

Overall, 44% (N = 480/1,090) of patients had EFDs. As shown in Table 2, adults with EFDs were significantly older than those without EFDs, and a significantly lower proportion were White/Caucasian. Thus, all subsequent analyses controlled for age and race.

Current Medication Characteristics

A significantly greater proportion of those with EFDs, compared to those without, reported taking antidepressant medications, while a significantly lower proportion reported taking stimulant medications (Table 2).

Executive Functioning

As expected, adults with EFDs had significantly more impaired BRIEF-A individual scales (T-scores ≥ 70) compared to those without EFDs (5.6 ± 1.7 vs 1.4 ± 1.4;

Table 2. Demographic and Medication Characteristics of Patients With High (BRIEF GEC T-Scores ≥ 70) and Low (BRIEF GEC T-Scores < 70) Levels of Executive Dysfunction

Characteristic	Patients With Low Levels of Executive Dysfunction (N = 610)	Patients With High Levels of Executive Dysfunction (N = 480)	*P* Value
Age, mean ± SD, y	30.9 ± 9.2	32.5 ± 9.5	.007
Gender, N (%)			.11[a]
Male	314 (51)	217 (45)	
Female	294 (48)	262 (55)	
Genderqueer/transgender	1 (< 1)	0 (0)	
Non-binary	0 (0)	1 (< 1)	
Not reported	1 (< 1)	0 (0)	
Race, N (%)			.01[a]
Asian, Native Hawaiian/Other Pacific Islander	38 (6)	37 (8)	
Black/African American	19 (3)	12 (3)	
Hispanic/Latino	30 (5)	25 (5)	
White/Caucasian	478 (78)	352 (73)	
More than 1 race	36 (6)	34 (7)	
Unknown/not reported	9 (2)	20 (4)	
Current psychiatric medications, N (%)[b]	372 (61)	289 (61)	.86
Stimulant medication	181 (30)	100 (21)	.002
Stimulant medication only	136 (22)	37 (8)	< .001
Stimulant medication + other psychiatric medications	45 (7)	63 (13)	.80
Non-stimulant ADHD medication	7 (1)	8 (2)	.45
Antidepressant medication	101 (17)	115 (24)	.003
Antianxiety medication	33 (5)	25 (5)	.85
Mood stabilizer medication	6 (1)	4 (< 1)	.84
Antipsychotic medication	7 (1)	8 (2)	.37

[a]Statistical test comparing distribution of 3 categories. Gender: male vs female vs all other gender identities; race: White/Caucasian vs not White/Caucasian vs unknown/not reported.
[b]Analyses control for age and race. Low-level: N = 605; high-level: N = 474.
Abbreviations: ADHD = attention-deficit/hyperactivity disorder, BRIEF = Behavior Rating Inventory of Executive Function, GEC = Global Executive Composite.

P < .001) and greater proportions with impaired scores on each individual BRIEF-A subscale (Figure 1).

Psychopathology

Adults with EFDs had significantly more impaired ASR clinical scales compared to those without EFDs (2.2 ± 1.6 vs 0.5 ± 0.8, *P* < .001). As shown in Figure 2A and 2B, adults with EFDs also had significantly greater proportions with impaired scores on individual (T-scores ≥ 70) and composite (T-scores ≥ 64) clinical scales, as well as the Drugs scale (T-scores ≥ 70).

Examining previous psychiatric diagnoses, adults with EFDs had significantly higher rates of anxiety disorders, depression, and bipolar disorder (Figure 2C).

ADHD Symptoms

As shown in Figure 2D, adults with EFDs had significantly higher scores (≥ 24) on the ASRS Inattentive and Hyperactive/Impulsive subscales, as well as total impairment (≥ 24 on either subscale), compared to those without EFDs.

Symptoms of Autism

Adults with EFDs had significantly more impaired SRS scales compared to those without EFDs (1.2 ± 1.4 vs 0.2 ± 0.6, *P* < .001). As shown in Figure 3A, adults with EFDs also had significantly greater proportions with impaired scores (T-scores ≥ 66) on the individual scales.

Social Functioning

Compared to adults without EFDs, those with EFDs had significantly greater proportions with impaired scores on all the ASR Adaptive Functioning scales (T-scores ≤ 30) except for the Spouse/Partner scale (Figure 3B).

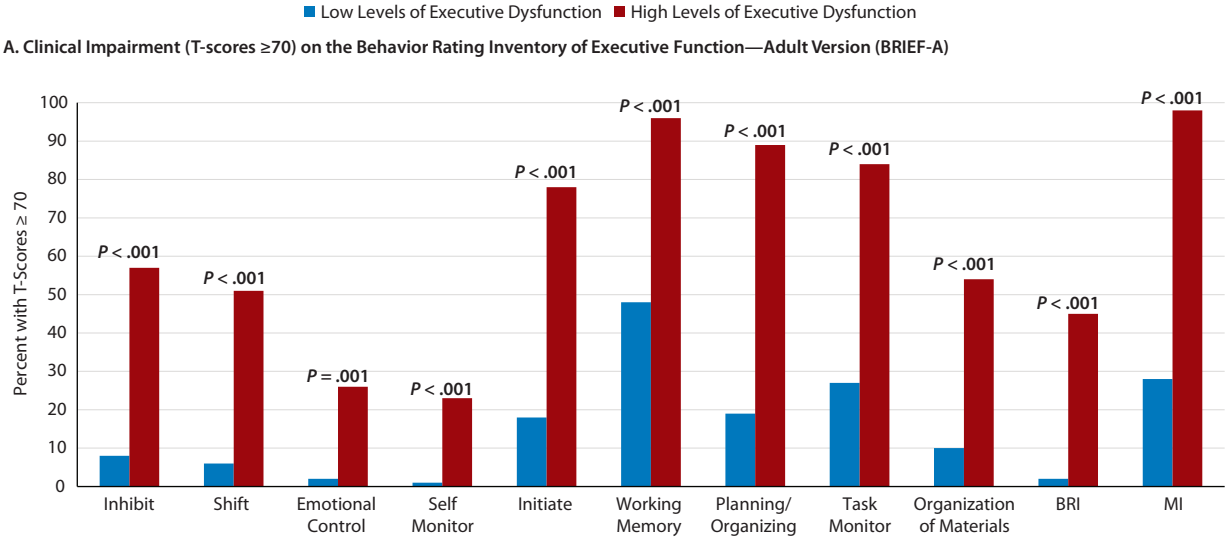
Mind Wandering, Emotional Dysregulation, and Quality of Life

Adults with EFDs had significantly greater proportions with high-level mind wandering and high-level deficient emotional self-regulation (Figure 3C and 3D) and significantly worse quality of life (Figure 3E).

Moderating Effects of Age, Sex, Race, and Current Psychiatric Medications

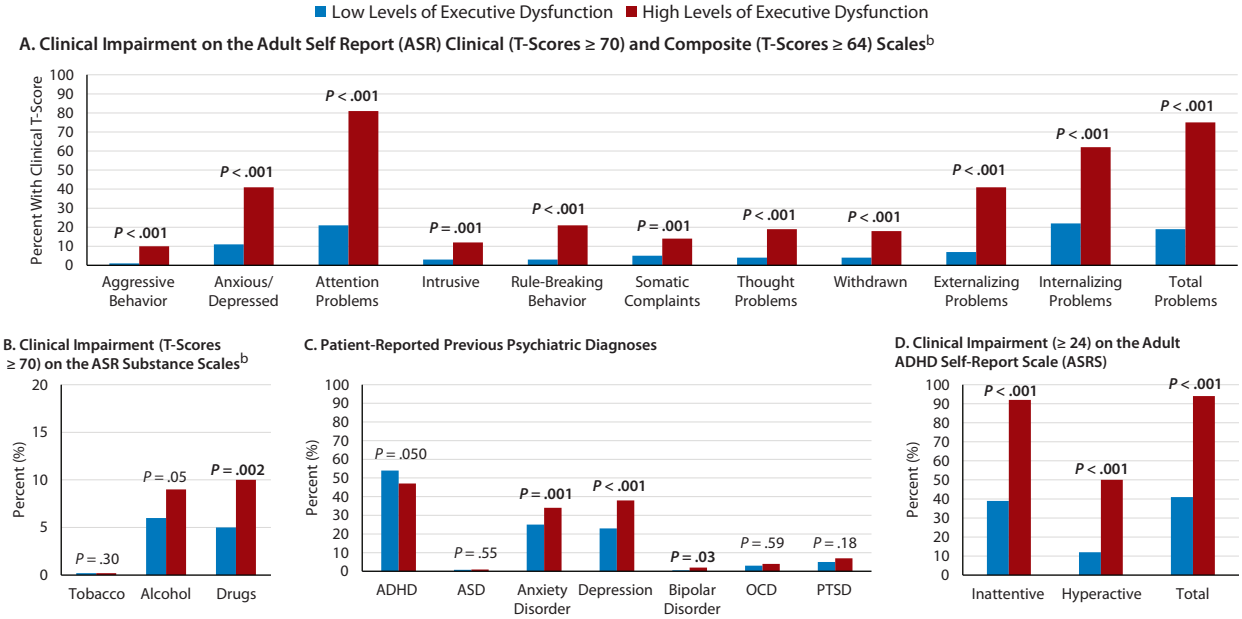
The only significant interactions identified were between current psychiatric medications and EFD status when examining the number of impaired BRIEF scales (*P* = .008) and between race and EFD status when examining impaired scores on the SRS Communication scale (*P* = .006). There was a significant difference in the number of impaired BRIEF scales between adults with and without EFDs among those who were and were not currently taking psychiatric medications. The magnitude of the difference was slightly larger among those taking medications (medicated: EFDs = 5.6 ± 1.7 vs no EFDs = 1.3 ± 1.4, *P* < .001; unmedicated: EFDs = 5.5 ± 1.7 vs no EFDs = 1.6 ± 1.4, *P* < .001). There was a significant difference in the percentage of adults with

Figure 1. Executive Dysfunction Among Adults With High (BRIEF GEC T-Scores ≥ 70) and Low (BRIEF GEC T-Scores < 70) Levels of Executive Dysfunction[a]



[a]Analyses control for age and race.
Abbreviations: BRI = Behavioral Regulation Index, BRIEF-A = Behavior Rating Inventory of Executive Function—Adult Version, GEC = Global Executive Composite, MI = Metacognition Index.

Figure 2. Psychopathology Among Adults With High (BRIEF GEC T-Scores ≥ 70) and Low (BRIEF GEC T-Scores < 70) Levels of Executive Dysfunction[a]



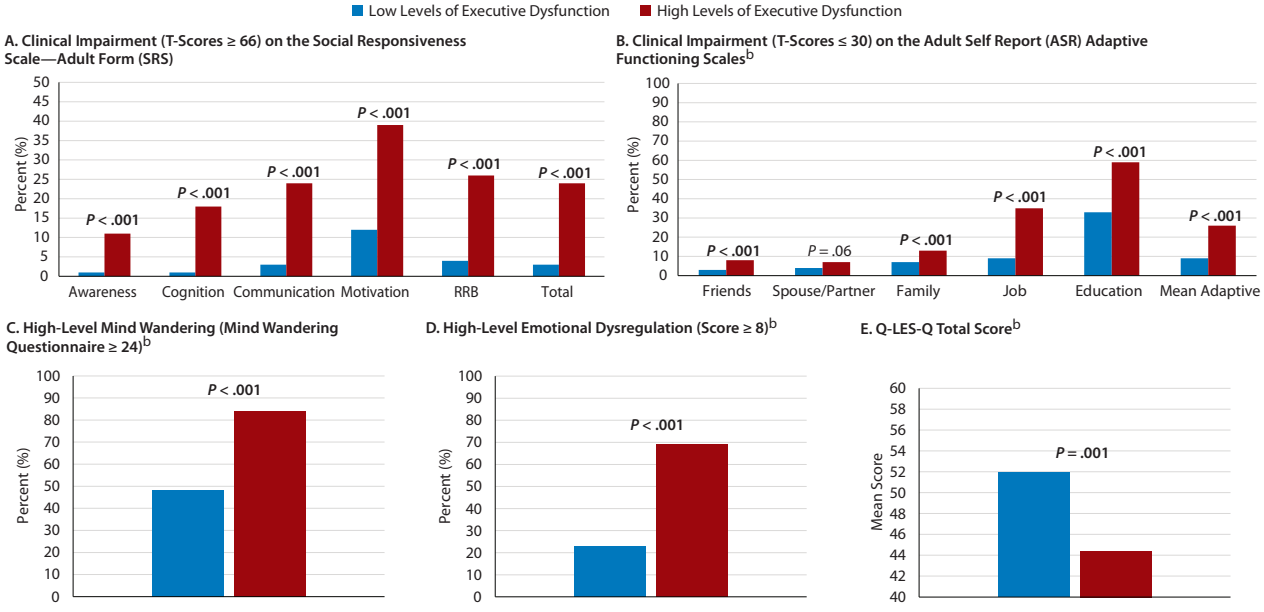
[a]Analyses control for age and race.
[b]Sample sizes vary. Part A: low levels = 599, high levels = 473; Part B: low levels = 582–589, high levels = 463–471.
Abbreviations: ADHD = attention-deficit/hyperactivity disorder, ASD = autism spectrum disorder, BRIEF = Behavior Rating Inventory of Executive Function, GEC = Global Executive Composite, OCD = obsessive-compulsive disorder, PTSD = posttraumatic stress disorder.

impaired T-scores on the SRS Communication scale between those with and without EFDs among adults who were and were not White/Caucasian. The magnitude of the difference was larger among adults who were White/Caucasian (White/Caucasian: EFDs = 24% vs no EFDs = 2%, $P < .001$; not White/Caucasian: EFDs = 23% vs no EFDs = 8%, $P = .001$). There were no significant moderating effects of age or sex on the relationship between EFD status and the functional outcomes.

DISCUSSION

In a large sample of referred adults with ADHD, those with BRIEF-A–defined EFDs based on a GEC T-score ≥ 70

Figure 3. Autistic Traits, Adaptive Functioning, Mind Wandering, Emotional Dysregulation, and Quality of Life Among Adults With High (BRIEF GEC T-Scores ≥ 70) and Low (BRIEF GEC T-Scores < 70) Levels of Executive Dysfunction[a]



[a]Analyses control for age and race.
[b]Sample sizes vary. Part B: low levels = 599, high levels = 473; Part C: low levels = 569, high levels = 455; Part D: low levels = 569, high levels = 454; Part E: low levels = 607, high levels = 477.
Abbreviations: BRIEF = Behavior Rating Inventory of Executive Function, DESR = deficient emotional self-regulation, GEC = Global Executive Composite, Q-LES-Q = Quality of Life Enjoyment and Satisfaction Questionnaire, RRB = Restricted Interests and Repetitive Behaviors.

(2 SDs) had more severe symptoms of ADHD, higher levels of psychopathology, more symptoms of ASD, higher levels of emotional dysregulation, more mind wandering, and worse quality of life. These results suggest that the BRIEF-A may be an easy-to-use assessment tool to identify, in a cost-effective manner, a subgroup of adults with ADHD with behavioral concomitants of EFDs at high risk for added morbidity.

Our findings of high levels of morbidity associated with EFDs in adults with ADHD are consistent with previous results documenting functional deficits in adults with ADHD using a psychometric-based definition of EFDs.[9] However, as argued by Barkley and Murphy[25] and Barkley and Fischer,[26] behavioral concomitants of EFDs may more accurately reflect functional dysfunction than psychometric testing. These results agree with previous research[27] showing that behavioral EF ratings are more strongly associated with impairment in functional life compared with psychometric assessments. These stronger associations are likely because behavioral EF ratings assess behavior in real life whereas psychometric measures assess behavior in an artificial setting with no distractions. Moreover, behavioral measures assess EF behaviors over a relatively long duration (eg, 1 week), while psychometric testing is typically limited to 1 or a few hours. Thus, these considerations along with empirical findings suggest that behavioral measures of EFDs identify an important subgroup of ADHD patients at risk for added morbidity and dysfunction, emphasizing the importance of efforts aimed at identifying EFDs in clinical practice.

Our findings showing that a BRIEF-A GEC score ≥ 70 was associated with highly impaired scores on all subscales of the BRIEF-A provide strong support for the idea that these adults with ADHD were in fact affected with deficits in prototypical cognitive abilities that define EFDs. These key deficits in metacognitive abilities are likely to interfere with the abilities of such individuals to orchestrate numerous subdomains of thought and action that provide for intentional, goal-directed, problem-solving abilities.

The finding that high scores on the BRIEF-A GEC were associated with significantly more severe symptoms of ADHD and symptoms of emotional dysregulation support the idea that EFDs contribute to the severity of ADHD. This finding is consistent with Barkley's idea that EFDs are involved in mechanisms that mediate the self-regulation of attention, behavior, and emotions.[28]

The significant association between the presence of EFDs with comorbid psychopathology, including symptoms of disruptive behaviors, mood, and anxiety, is consistent with the literature[20–22,29] showing that the presence of EFDs captures individuals with ADHD that are more susceptible to comorbid psychiatric disorders.

Also noteworthy is the association identified between the presence of EFDs and alcohol and drug use disorders, suggesting that EFDs may also moderate the risk for these serious complications of ADHD most likely through more severe symptoms of ADHD and associated psychopathological conditions.

The finding that only 44% of adults with ADHD were identified as having EFDs supports accumulating clinical evidence suggesting a dissociation between ADHD and executive dysfunctions. Support for such a dissociation

can be found in a recent neuroimaging study that showed ADHD and working memory capacity to be behaviorally and neurobiologically separable using functional magnetic resonance imaging.[30]

A practical and easy way to help identify EFDs in adults with ADHD in clinical practice has important implications. As shown in our analysis, adults with ADHD with associated EFDs are at increased risk for higher levels of impairment and dysfunction compared with other adults with ADHD without EFDs, supporting efforts to target EFDs in the overall management strategies for this group of patients. As shown in a recent study by our group,[31] the effects of stimulants on EFDs are more modest than those observed on core features of ADHD, suggesting that new pharmacologic and non-pharmacologic approaches targeting EFDs need to be further developed. For example, a randomized clinical trial using protocol-specific strategies addressing EFDs in stimulant-treated adults with ADHD showed significant amelioration of EFDs under double-blind conditions.[32]

Although we have focused on EFDs as a means of identifying adults with ADHD at high risk for morbidity and disability, one might also consider focusing on another measure such as comorbid psychopathology or emotional dysregulation, which are also associated with poor outcome.[33–35] One advantage of assessing for EFDs is that responses to individual items could be useful for individualizing cognitive behavior therapy or planning educational accommodations. Querying patients about EFDs is also likely to point out areas of dysfunction in the patient's life that were not clear from a clinical interview about psychopathology.

Our results should be considered in light of some methodological limitations. Because our study relied on the BRIEF-A, we do not know whether other behavior scales measuring EFDs, such as the CBS, Conners Adult ADHD Rating Scale, or Brown Attention-Deficit Disorder Scale, would produce comparable results. While historically EFDs have been assessed via psychometric testing by a trained neuropsychologist, this approach is costly and not widely available, and there is no universally agreed upon operational definition of an EFD at the individual level. Therefore, having an easy-to-use self-report method for defining EFDs in adults with ADHD in clinical practice would allow clinicians to identify subjects with ADHD with associated EFDs who are at high risk for added functional morbidity and disability. Additionally, since the subjects were referred and largely Caucasian, our results may not generalize to community samples or other ethnic groups.

Despite these considerations, our results show that high T-scores on the BRIEF-A GEC can help identify, in a simple-to-use, inexpensive, cost-effective manner, EFDs in adults with ADHD. Adults with ADHD and BRIEF-A–defined EFDs are at higher risk for added morbidity and dysfunction beyond that predicted by ADHD itself.

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