

Two ADHD Scales Used With Deaf Adults Are Not Confounded by Cultural Identity

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ABSTRACT

Thirty three deaf and hard of hearing (Deaf/HH) adults took the Deaf Acculturation Scales (DAS) and two common self-rating scales used for diagnosing ADHD, the Attention Deficit Scales for Adults – Sign Language Version (ADSA-SLV), and the Behavior Rating Inventory of Executive Function (BRIEF-A). Strength of Deaf or hearing cultural identity on the DAS did not significantly influence ADSA-SLV or BRIEF-A scale scores, suggesting their existing norms may be valid for deaf adults.

INTRODUCTION

- **Attention Deficit Hyperactivity Disorder (ADHD)**
 - ✦ A biological disorder of frontal lobe executive functions causing inattention and/or hyperactivity/impulsivity
 - ✦ A recognized barrier to learning and success in school, career, and life
 - ✦ A disorder linked to increased risk of comorbid mental health conditions like anxiety and depression¹
- **ADHD rating scales used clinically with Deaf/HH adults**
 - ✦ Attention Deficit Scales for Adults - Sign Language Version (ADSA-SLV)²
 - ✦ Behavior Rating Inventory of Executive Function (BRIEF-A)³
- **Research Problem**
 - ✦ The original ADSA and the BRIEF-A were developed and normed on hearing samples.
 - ✦ The ADSA-SLV and BRIEF-A have now been partially validated for Deaf/HH college students.^{4,5,6}
 - ✦ Nevertheless, it has been argued that culturally specific behavior and attitudes of Deaf/HH adults might bias ADSA-SLV and BRIEF-A scores, and therefore undermine their validity.⁷
- **Study Purpose**
 - ✦ Determine if cultural identity, measured by the Deaf Acculturation Scales⁸, significantly influences ADSA-SLV and BRIEF-A scores. If so, ADSA-SLV and BRIEF-A test content or norms should be adjusted for cultural bias.

METHOD

- **Participants**
 - ✦ 29 Deaf/HH RIT college adults with no history of ADHD (See Table 3 for demographic summary statistics)
- **Measures**
 - ✦ **ADSA-SLV**²
 - ✦ 54-item self-report sign language instrument with 9 scales using a 5-point Likert scale (Table 1)
 - ✦ Nine scale scores and one total ADSA score - higher scores imply greater attentional dysfunction
 - ✦ Linguistically accessible: ASL, English-based sign language with or without voice, and English print.
 - ✦ Excellent reliability, item functioning, criterion and predictive validity for Deaf/HH college adults^{4,5,6}
 - ✦ **BRIEF-A**³
 - ✦ 75-item self-report English language instrument with 9 scales using a 3-point Likert scale (Table 2)
 - ✦ Nine scale scores and three summary indexes – higher scores imply greater executive dysfunction
 - Behavior Regulation Index (BRI): : Sum of first four scales in Table 2
 - Metacognitive Index (MI): Sum of last five scales in Table 2
 - Global Executive Composite (GEC): Sum of all 9 scales in Table 2
 - ✦ Good to excellent reliability, item functioning, and criterion validity for Deaf/HH college adults.⁷
 - ✦ **Deaf Acculturation Scales (DAS)**⁸
 - ✦ 58-item self-report English Language instrument with 2 scales using a 5-point Likert scale (Table 3)
 - ✦ 5 parallel subscales within each scale (Table 3)
 - ✦ 2 scale scores and 10 subscale scores – higher scores imply stronger cultural identity
 - ✦ Well validated on a national community sample of Deaf/HH people^a
- **Analysis**
 - ✦ Regressions of ADSA-SLV and BRIEF-A onto DASd and DASH separately
 - ✦ Regressions controlled for common demographic factors: age, gender, race/ethnicity, and childhood SES

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RESULTS

- **Table 3:** ADSA-SLV and BRIEF-A means were close to the normative means for non-ADHD adults
- **Table 4:** Regression of DASd and DASH onto ADHD measures
 - ✦ Semipartial r's were small and non-significant for both ADHD scales with demographic variables controlled

CONCLUSIONS

- With common demographic variables controlled, there was no evidence for a significant influence of Deaf or hearing cultural identity on ADSA-SLV or BRIEF-A scores.
- Results are consistent with previously presented evidence^{4,5,6,7} that the existing ADSA-SLV and BRIEF-A test norms are valid for use with Deaf/HH college adults
- Further research with a larger sample size and additional cultural identity measures is warranted to:
 - ✦ More precisely estimate the correlations between cultural identity measures and the ADSA-SLV and BRIEF-A
 - ✦ Confirm the absence of significant influence of cultural factors on ADSA-SLV and BRIEF-A scores.

Table 1. ADSA-SLV Scales and Item Examples

ADSA Scale	Item Example
Attention-Focus/Concentration	I tend to daydream.
Interpersonal	My intimate relationships have been short-lived.
Behavior-Disorganized Activity	I jump from one task to another.
Coordination	I feel clumsy and awkward.
Academic Theme	I have trouble explaining my ideas to others.
Emotive	I feel stressed by the demands and expectations of others.
Consistency/Long-Term	I finish the home projects I start.
Childhood	As a child I was described as clumsy .
Negative-Social	I do not have much patience with people.

Table 2. BRIEF-A Scales and Item Examples

BRIEF-A Scale	Item Example
Inhibit	I tap my fingers or bounce my legs.
Shift	i have trouble changing from one activity or task to another.
Emotional Control	I have angry outbursts.
Self-Monitor	I talk at the wrong time.
Initiate	I need to be reminded to begin a task even when I am willing.
Working Memory	I have trouble with jobs or tasks that have more than one step.
Play/Organize	I get overwhelmed by large tasks.
Task Monitor	I make careless errors when completing tasks.
Organization of Materials	I am disorganized.

Table 3. DAS Scales, Subscales, and Item Examples

Subscale	DASd	DASH
Cultural Identity	I call myself deaf.	I call myself hearing-impaired or hard of hearing
Cultural Involvement	How much do you enjoy going to deaf events/parties/gatherings	How much do you enjoy attending hearing gatherings/events/parties
Cultural Preferences	I would prefer if my roommate was deaf	I would prefer my roommate were deaf
Cultural Knowledge	How well do you know traditions and customs from Deaf schools?	How well do you know important events in American/world history?
Language Competence	How well do you sign using ASL?	How well do you speak English using your voice?

Table 4. Demographic and Test Statistics

Measure	Level	M	SD
Age	Years	22.9	2.6
ADSA-SLV	Total Score	57.9	13.09
BRIEF-A	BRI	55.07	10.09
	MI	55.67	8.72
	GEC	55.76	9.23
DAS	DASd	3.98	.62
	DASH	3.48	.58
	%		N
Gender	Men	48.3	14
	Women	51.7	15
Hispanic Ethnicity	Hispanic	6.9	2
	Non-Hispanic	93.1	27
Race	White	81.48	22
	Black/African American	7.4	2
	Asian	11.1	3
Self-Reported Cultural Identity	Culturally Deaf	48.3	14
	Deaf	27.6	8
	Hard of Hearing	20.7	6
Childhood SES	Low	3.4	1
	High	51.7	15
Parents' Hearing status	Hearing	48.3	14
	One or Both Deaf/HH	69.0	20
School Background	Both Schools for the Deaf and Mainstream Schools	31.0	9
	Schools for the Deaf	27.6	8
	Mainstream Schools	55.2	16
Best Language	ASL/Sign Language	17.2	5
	English	41.4	12
	Both	10.3	3
		48.3	14

Table 5. Semipartial Correlations (age, gender, race/ethnicity, childhood SES controlled)

Measure	Score	DASd		DASH	
		r	F(1,23), p	r	F(1,23), p
ADSA-SLV	Total	.09	.22 .64	.29	2.6 .12
	BRI	.06	.10 .76	.23	1.93 .18
BRIEF-A	MI	.04	.04 .84	.21	1.3 .27
	GEC	.05	.08 .77	.24	1.85 .19