

ADHD and Malingering in Postsecondary Settings: An Overview of Emerging Issues

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College Students with ADHD

- **Estimated 2-4% of college students affected by ADHD (DuPaul et al., 2001)**
- **Number of students seeking assistance with ADHD Sxs on rise (Harrison, 2004)**

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Rise in Adults Diagnosed with ADHD

- **Increased public awareness of symptoms of ADHD has led to increase in adults seeking treatment (Roy-Byrne et al., 1997)**
- **Diagnosis of ADHD in adults is complicated by difficulty establishing presence of childhood symptoms (Murphy & Schachar, 2000)**
- **Diagnosis relies primarily on self-report and secondarily on NP assessment**

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ADHD According to DSM-IV: 6/9

Sxs

- Fidgets/Squirms
- Leaves seat
- Runs/climbs-restlessness (adults)
- Loud play/leisure
- "On the go"
- Talks excessively
- Blurts answers
- Difficulty awaiting turn
- Interrupts/intrudes
- Inattention to detail/careless errors
- Poor sustained attention
- Fails to listen
- Fails to follow thru on tasks
- Disorganized
- Task avoidance
- Loses items
- Easily distracted
- Forgetful

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ADHD According to DSM-IV (cont.)

- 3 major types
- Sxs are developmentally inappropriate and persist for at least 6 months
- Some evidence of Impairing Sxs before age 7
- Some Impairment in 2 or more settings
- Clear evidence of impairment in social, academic, or occupational functioning
- Rule out other causes of Sxs

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Problems with Reliance on Self-Report

- ADHD symptoms are nonspecific and misunderstood by general population
 - Sxs part of human nature
 - Sxs frequently occur in other disorders
 - Number of sxs does not correlate highly with level of actual impairment (Gordon et al., 2006)
- Multiple studies have documented a generally high base rate of ADHD symptom reporting in general population

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Problems w/ Self-report: Misremembering or Misconception of Impairment?

- Adults generally describe their childhood behaviors as ADHD-like (Murphy, Gordon & Barkley, 2000).
 - Of 719 adults renewing drivers license, almost 80% recall experiencing 6+ DSM symptoms of ADHD occasionally & 25% recall having them very often.
 - Notably, 12% reported 6+ clinically significant current symptoms
- 16 year follow-up study of adults who either had been diagnosed with ADHD as children or who showed no evidence of ADHD symptoms during childhood (Mannuzza et al., 2002)
 - 32% of childhood symptoms were rated as clinically significant in at least 20% of controls (i.e., those who had been carefully screened for an absence of childhood symptoms)
 - 11% of controls met diagnostic criteria for ADHD based on retrospective self report

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Problems with Self-report: Nonspecific Sxs

- Many post-secondary students seeking treatment for non-ADHD concerns report experiencing significant symptoms of ADHD (Harrison, 2004)
 - 224 students with no hx of ADHD presenting for treatment at university clinics completed Brown Attention Deficit Disorder Scale
 - 27% of health center referrals; 66% of counselling center referrals met ADHD criteria using manual cutoff score
 - ETOH-related, sleep deprivation, stress, etc.?
- **Bottom line:** Just having 6+ symptoms is not the same as meeting diagnostic criteria for ADHD

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Problems with Reliance on Self-Report

- Superficial understanding of ADHD and nonspecific nature of symptoms may lead to over-self-identification at best
- At worst, increased public awareness, reliance on self-report in diagnosis, and ubiquitous nature of ADHD symptoms facilitates those who choose to malingering ADHD

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Malingering: APA Definition

- V65.2
- **Intentional** production of false or grossly exaggerated symptoms, motivated by **external** incentives
 - Avoid work or conscription
 - Evade criminal prosecution
 - Obtain financial compensation
- **Not an all or nothing thing**
 - Malingering can co-exist with genuine injury
 - Exaggeration of Sxs is more common than outright fabrication (Rogers et al., 1998)

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Epidemiology of Malingering

- True incidence unknown because successful malingerers go undetected
- Members of American Board of Clinical Neuropsychologists estimates: 39% of mTBI cases, 30% of disability cases, & 29% of personal injury cases (Mittenberg et al., 2002)

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Epidemiology of Malingering

- Unknown malingering rate for Adults presenting with ADHD (Harrison, 2006)
- Emerging prevalence data suggests rates in university-based clinics are comparable to those in personal injury litigants and disability claimants:
 - Suhr et al. (2008) 31% of ADHD cases (N = 85)
 - Sullivan et al. (2007) 24.5% of ADHD and ADHD/LD cases (N = 53)
 - Alfano & Boone (2007) 31% of ADHD/LD cases

But why would students “cheat” to obtain a diagnosis?

- Because strong external incentives exist
- Because they do
- Because they can

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External Incentives for College Students to Receive ADHD DX

- Academic/high stakes test accommodations
- Disability-based funding for college (e.g., benefits paid by vocational rehabilitation)
- Social security benefits (Casser et al., 1996)
- Access to ADHD meds to facilitate studying/cramming (Harrison, 2007)
 - Drugs like Ritalin improve blood flow to frontal and parietal areas and improve alertness & attention
- Prescription-based alternative to illicit drugs like cocaine (Babcock & Byrne, 2000)

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Factors Facilitating ADHD Malingering: Culture of Cheating

- Multiple studies have consistently found that a majority of undergraduate students admit to cheating on their way to earning a degree (Hughes & McCabe, 2006)
- McCabe & Trevino (1993) studied over 6000 students across 31 small-medium US campuses
 - 67% reported engaging in at least one of 14 “questionable behaviors”
 - Almost 20% reported engaging in 5+ such behaviors
 - 64% reported to have engaged in “serious” test cheating
 - 66% reported “serious” cheating on written work (e.g., plagiarism, turning in someone else’s work, etc.)

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“Because They Can”: ADHD Assessment’s Vulnerability to Feigning

- Both the nature of the disorder and the nature of the evaluation facilitate the feigning of ADHD symptoms

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ADHD Assessment’s Vulnerability to Feigning: Nature of the Disorder

- Inattentiveness is a core symptom of ADHD
- Inattentiveness is also most commonly reported malingering strategy in NP simulation studies (Rogers, 1997)
- Easier to exaggerate existing Sxs than to produce new Sxs
- Ubiquitous nature of ADHD Sxs make ADHD a prime target for faking

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ADHD Assessment’s Vulnerability to Feigning: Nature of the Evaluation

- Core components of ADHD evals are primarily self-report and secondarily neuropsychological testing
- Self-reported symptoms easily feigned (even on formal measures) & diagnostic interviews (i.e., clinical judgment) tend to be unreliable (Schretlen, 1988)
- NP testing extremely sensitive to effort
 - About 50% of variance in NP performance may be effort/cooperation related (Green, Rohling, Lees-Haley & Allen, 2001)
 - But effort not regularly assessed with formal measures in ADHD evals

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Students Feigning ADHD: An Emerging Area of Research

- Until recently only Case study evidence available (Casser et al., 1996; Conti, 2004)
- Several researchers have begun to focus on this issue (and feigned LD) over the past 3-5 years
 - Brian Sullivan (College of Charleston)
 - Allyson Harrison (Queen's University, Ontario)
 - David Osmon (University of Wisconsin, Milwaukee)
 - Julie Suhr (Ohio University)

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Vulnerability to Feigning on Checklists (1)

- ADHD symptom checklists have high face validity
- Do not contain any validity scales to identify exaggeration or fabrication
- Quinn (2003) found ADHD symptoms could be easily faked for both retrospective and current symptoms on the Barkley ADHD Behavior Checklist for Adults
- College students who read over DSM-IV criteria could easily fake on most common ADHD checklists. Jachimowicz & Geiselman (2004)
 - 75% on ARS-IV
 - 95% on BADDs
 - 90% on CAARS
 - 65% on WURS

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Vulnerability to Feigning on Checklists (2)

- Tucha et al. (2009) found that over 90% of adult college students (w/ no hx of ADHD) could successfully feign ADHD on BADDs
- Successful feigning was not related to coaching on DSM-IV criteria (effect of media, internet, etc.?)
 - 92% of naïve simulators successful (N=26)
 - 96% of coached simulators successful (N=26)
- No false positives in control group (N=26)
- 100% accuracy in clinical comparison group (N=12)

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Use of NP Tests in ADHD Evals

- NP testing is not universally accepted in ADHD evals despite ADHD being a neurodevelopmental disorder with neuropsychological impairments (Suhr et al., 2008)
- NP field is accustomed to dealing with malingered disability and has established measures/techniques for formally assessing effort/credibility of performance
- Similar measures only recently being studied in ADHD populations

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Simulation Studies of Malingered ADHD in NP Assessment

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Leark et al. (2002)

- Used visual stimulus version of TOVA CPT with 36 non-LD & non-ADHD college students simulating malingered ADHD
- Students served as their own control and took test twice (i.e., no ADHD comparison group included)
- When instructed to fake, committed nearly 4 times as many errors, exhibited slower and more variable response times

Quinn (2003)

- Early study to examine malingering on cognitive tests (IVA) during ADHD assessment
- N = 42 volunteer undergrads randomly assigned to control or simulator groups (No hx of ADHD)
- N = 16 undergraduates Dx with ADHD
- Administered IVA CPT and completed Barkley ADHD Behavior Checklist for Adults
- Notably, ADHD group did not report clinically significant current problems: Inatt = 4.9 (2.4), Hyp = 4.8 (2.2)
- As noted earlier, behavior checklists were easily faked; however,...

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Quinn (2003)

- 81% of IVA scales discriminated malingerers from ADHD group-with malingerers overestimating attn. deficits
- Generally IVA scores in the 50's or below (i.e., more than 3 sd below control means) suggested poor effort
- Cutoff equation using auditory scores yielded 94% sensitivity, 91% specificity, 88% PPV, and 95% NPP
- Concluded that CPT test performance was more sensitive to malingered ADHD than self-report measures, and recommended their inclusion in adult ADHD evaluations to ensure that limited disability funds are not drained by fraudulent claims

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Harrison et al. (2007)

- N = 70 college students with no hx of ADHD randomly assigned to control or ADHD simulator group
- Compared to archival sample of 72 students diagnosed with ADHD on self-report scale (CAARS) and measures of reading fluency and processing speed from WJ Psychoeducational Battery-III

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Harrison et al. (2007)

- **Simulators successfully endorsed items on CAARS at a level equal to or higher than those diagnosed with ADHD**
- **But, simulators performed more poorly than those with ADHD on achievement-test based measures of processing speed**
- **Detection algorithm yielded 25% error rate**

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Harrison et al. (2007)

- **Cautioned against isolated use of self-report in ADHD assessment**
- **Suggested caution in assessing Adults or college students presenting for first-time diagnosis with no documented history of previous impairment in school or other life activities**

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Frazier et al. (2008)

- **89 college students with no hx of ADHD/RD randomly assigned to one of three groups: control, ADHD simulation, or RD simulation**
- **Administered multiple SVTs to assess their validity in ADHD/RD evals**
- **No clinical comparison group included, but did note that unreported data from 9 ADHD subjects indicated no false positives**

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Frazier et al. (2008)

- SVTs generally discriminated well between simulators and controls with relatively large effect sizes
- Best classification rates obtained for VSVT Hard Items and VIP Nonverbal Total
- % of ADHD & RD simulators accurately classified ranged from about 80-90%, with false positive rates ranging from 0-3.6%

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Studies of Noncredible ADHD in NP Assessment Using Clinical Samples

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Henry (2005)

- 52 adults underwent NP eval for personal injury litigation
- 26 classified as probable malingerers (PM) based on Slick et al. criteria (1999)
- PM's overestimated attentional deficits on TOVA similar to participants in Lark et al. (2002) study, except that omission errors were most predictive: sens=69%; spec=92%
- Note: PM's were NOT faking ADHD

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Sullivan, May & Galbally (2007)

- Used WMT in 66 consecutive assessments of ADHD and/or LD at campus-based clinic in southeastern US
- 21 students evaluated for ADHD only
- 13 students evaluated for LD only
- 32 students evaluated concurrently for ADHD & LD
- Anyone scoring below recommended cutoff values on one or more of primary effort measures of WMT defined as having failed WMT

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Sullivan, May & Galbally (2007)

	% Students failing WMT
Students evaluated only for ADHD	47.6% (10/21)
Students evaluated only for LD	15.4% (2/13)
Students evaluated for ADHD & LD	9.4% (3/32)

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Sullivan et al. (cont.)

- Students failing WMT had significantly higher scores on CAARS-S & lower scores on WAIS-III & CVLT-II
- More students failed WMT when administered without examiner in room
- Validity scales on PAI not sensitive
- Concluded that, in light of real secondary gain issues, should defer Dx in people who fail WMT.

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Suhr et al. (2008)

- Used WMT in 85 consecutive ADHD assessments at a university clinic
- Compared three groups:
 - Those failing WMT (N = 26)
 - Those meeting DSM-IV criteria for ADHD (N = 15)
 - Those meeting criteria for psych disorder after ADHD ruled out (N = 24)

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Suhr et al. (2008)

- Estimated base rate of noncredible performance was 31%
- CAARS scores did not differ across groups
- CAARS Inconsistency Index not sensitive to noncredible performances
- Scoring above manual suggested cutoff for exaggeration (T>80) common among all three groups for DSM-IV Inattention Index

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Suhr et al. (2008)

- With one exception (Voc-DS), multiple imbedded measures of SV were 100% specific, though sensitivity was low (4-19%)
- Noncredible group performed worse than others on measures of memory and executive functioning, but not processing speed
- Although noted as common, secondary gain issues not rigorously documented

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Summary Thus Far (1)

- Number of adults diagnosed with ADHD is on the rise
- Adult diagnosis is complicated by difficulty documenting childhood impairment
- Malingering is *intentional* faking of Sxs for *external* gain
- Several factors make ruling out malingering in ADHD assessment important among college students:
 - Culture of cheating
 - Presence of incentives
 - Ubiquitous & nonspecific nature of ADHD Sxs
 - Misunderstanding difference b/t Sxs & functional impairment
 - Over reliance on self-report in diagnosis makes evals vulnerable to feigning

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Summary Thus Far (2)

- Malingered ADHD not well-studied in college setting, but initial research suggests...
 - 1) Prevalence rates similar to those found in disability/personal injury settings
 - 2) Tests of cognitive functioning and effort used in NP assessment are more sensitive to feigning than self-report scales and should be included in evaluations

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Rational for Current Study

- As noted earlier, Harrison (2007) has suggested that malingering may be higher in students & adults presenting for first time diagnosis
- However, no study has yet to examine differential performance on effort indicators between those with a previous ADHD Dx and those without

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Sample

- 50 consecutively referred college students ***seeking accommodations*** for suspected ADHD
 - Included in sample if reported 6 or more inattentive or hyperactive symptoms on Barkley ADHD Behavior Checklist for Adults
- Sample divided into two groups (HX vs. NHX) based on presence/absence of a previous diagnosis of ADHD before the age of 18

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Sample Demographics

- HX:
 - N = 31
 - Mean Age = 20.5 (4.6)
 - 21 Males, 10 Females
 - Mean Education Level = 12.5 (0.8)
- NHX:
 - N = 19
 - Mean Age = 24.1 (8.1)
 - 5 Males, 14 Females
 - Mean Education Level = 13.2 (1.2)

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Instruments

- Word Memory Test
 - 20 word pairs; 6 sec exposure over 2 learning trials
 - Recognition trials: 40 word pairs (target & distractor)
 - Primary Effort Measures: Immediate Recognition (IR), Delayed Recognition (DR), & Consistency (CNS)

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Instruments (cont.)

- **Integrated Visual & Auditory Continuous Performance Test (IVA)**
 - Visual & auditory presentations of target (1) and distractor (2)
 - Format of test: Warm-up phases, practice with feedback, 15-minute scored portion, cool-down phase
 - Primary Scores: Full Scale Attention Quotient (FSAQ) & Full Scale Response Control Quotient (FSRQ)
 - Auditory and Visual subscales for each

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Hypothesis

- **Students seeking accommodations for ADHD who have no history of diagnosis prior to adulthood will perform significantly worse on measures of effort (WMT) and sustained attention (IVA) than those with a history of previous diagnosis**

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Preliminary Data Analysis

- Chi-square testing group differences on WMT pass/fail rates
- Independent T-tests to assess group differences on WMT summation scores and on the subscales of the IVA
- Comparison of WMT pass/fail rates with Quinn's cutoffs for noncredible performance on the IVA

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WMT Results

- Only 4 WMT failures among 50 participants (estimated base rate = 8%)
 - All 4 were from the NHX group
 - 21% of NHX group
- Pearson Chi-Square = 7.1, p = .008

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WMT Average Scores

	N	Mean	St. Dev.
HX	31	97.7	3.2
NHX	19	91.6	12.2

t = 2.15, df = 19.58 (adj. for unequal variance), p = .044

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Quinn Classifications

- Auditory Cutoffs identified 4 noncredible performances
- Full Scale Cutoffs did not add additional information
- Three of four were also identified by WMT
- All 4 were members of NHX group
- Base rate estimate using both SV Indices = 10% (26% of NHX group)

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IVA Composite Scores

	FSAQ*		FSRQ*	
	Mean	St. Dev.	Mean	St. Dev.
HX	87.2	23.0	91.3	12.4
NHX	63.0	26.2	74.0	24.6

*p < .05

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IVA Scores: Attention Subscales

	AA*		VA*	
	Mean	St. Dev.	Mean	St. Dev.
HX	85.5	25.7	91.2	19.5
NHX	63.1	24.5	71.1	29.5

*p < .05

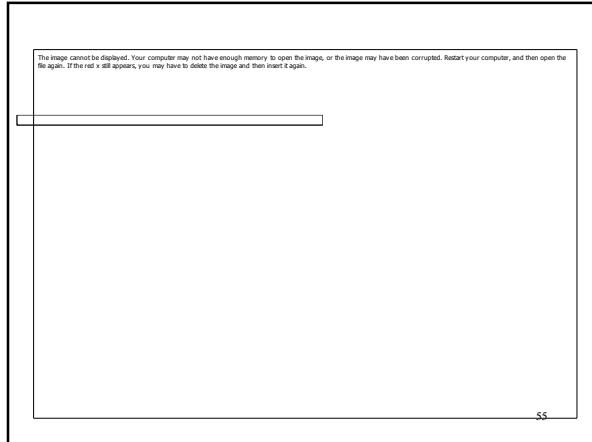
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IVA Scores: Response Control Subscales

	AR*		VR	
	Mean	St. Dev.	Mean	St. Dev.
HX	93.0	11.2	87.9	20.0
NHX	70.2	22.7	83.8	24.4

*p < .05

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Conclusions

- **Students with no hx of previous dx of ADHD who present for ADHD evaluations within the context of large external incentives tend to perform more poorly on tests of effort and sustained attention**
- **Consistent with Harrison (2007), caution should be exercised in diagnostic evaluations under these circumstances**
- **Quinn's cutoff scores for noncredible IVA performance show good convergent validity with WMT in a clinical sample**

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Future Research

- **More studies of noncredible performance in clinical samples with documentation of secondary gain issues**
- **More studies to validate use of effort measures in ADHD and LD populations**
- **Validation/replication of suggested cutoffs for IVA and development of more imbedded measures on other CPTs**
- **Development of validity indicators for self-report scales**

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