ADHD and Problem Gambling: A Hidden Disorder

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Disclosures and Conflicts of Interest

Paid Consulting, Honorariums, or Financial Compensation from:

- University of Minnesota Program on Human Sexuality
- Nevada Problem Gambling Center
- California Public Health Department
- Keystone Center, Extended Care Unit, Philadelphia
- National Institute of Mental Health / Grant Funding
- Florida Counsel on Compulsive Gambling
- Royalties from Books / Book Chapters Authored
- South Africa National Counsel on Gambling
- Recovery Resources, Inc., Cleveland, Ohio
- Recovery Bands, LLC / Rehabs.com and Pro Talks Articles
Objectives of this Presentation

- Deepen scientific understanding of ADHD in adults including some aspects of the neurobiological underpinnings linked to ADHD
- Enhance and strengthen ability to accurately assess ADHD in adults with co-occurring gambling disorders
- Disseminate information about relationship between ADHD and gambling disorders
- Discuss treatment options for adults with ADHD
Attention Deficit Hyperactivity Disorder among Pathological and At-Risk Gamblers Seeking Treatment: A Hidden Disorder

Marie Grall-Bronnec, Laura Wainstein, Jennyfer Augy, Gaëlle Bouju, Fanny Feuillet, Jean-Luc Vénisse, Véronique Sébille-Rivain

Reference Centre for Excessive Gambling, Department of Addictology, EA 4275 Biostatistics, Clinical Research and Subjective Measures in Health Sciences, and Biostatistics Department, University Hospital of Nantes, Nantes, France
<table>
<thead>
<tr>
<th>Gambling Disorders</th>
<th>ADHD</th>
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<tbody>
<tr>
<td>Preoccupation</td>
<td>Hyperfocusing</td>
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<td>Escape</td>
<td>Distractibility / Daydreaming</td>
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<td>Lying</td>
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<td>Loss of Control</td>
<td>Impulse Control Problems</td>
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<td>Risking Relationships</td>
<td>Lack of Future Directed Thinking; Risk-Taking, Excitement-Seeking</td>
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<td>Chasing Behaviors</td>
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<td>Bailouts</td>
<td>Being Rescued</td>
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Underlying / Associated Features of Gambling Problems and ADHD

- Loneliness
- Hypersensitive
- Inattention
- Shame
- Depression
- Anxiety
- Conflict
- Substance Abuse
- Self-Esteem
- Fear
- Impulsive
Current studies suggest that the prevalence of adult ADHD in problem gamblers is ~ 10 – 20%.

Perhaps the more relevant question is why are individuals with ADHD at increased risk for a variety of addictive behaviors, in particular:

**Alcohol and Drug Addictions** (19% - 33%)

**Hypersexual Behavior**

**Sex Addiction** (23% to 28%)
Comparable Levels of Impulsivity

Clinical Levels of Impulsivity

<table>
<thead>
<tr>
<th>Group</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Gamblers</td>
<td>48.8%</td>
</tr>
<tr>
<td>Hypersexuals</td>
<td>48.0%</td>
</tr>
<tr>
<td>Meth Abusers</td>
<td>44.4%</td>
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</tbody>
</table>
Similar Patterns in Patients with ADHD and Hypersexual Behavior

MANAGEMENT PERSPECTIVE

Perspectives on the assessment and treatment of adult ADHD in hypersexual men

Rory C. Reid*, Margaret Davant#, Agatha Lenartowicz†, Rashid M Terrovillas* & Timothy W Fong*

Practice points

- Adult patients seeking help for hypersexual behavior present with high prevalence rates of comorbid mood and anxiety disorders, ADHD and substance-related disorders.
- Many of the associated characteristics of ADHD, such as increased poor psychosexual problems in romantic relationships and employment difficulties, may make individuals vulnerable to hypersexual behavior as a way of “escaping” or “avoiding” emotional discomfort.
- Clinicians should be aware of some of the unique characteristics of hypersexual patients in order to avoid misdiagnosing them with adult ADHD.
- Careful screening and diagnostic assessment for adult ADHD in hypersexual patients can differentiate legitimate cases of ADHD from symptoms that are associated with hypersexual behavior.
- Patients with hypersexual behavior and comorbid ADHD are likely to benefit from a combination of pharmacotherapy and behavioral therapy combined. Mindfulness interventions are also showing some preliminary evidence in producing positive outcomes in patients with adult ADHD and hypersexual behavior.

SUMMARY This article reviews the current body of research on adult ADHD and hypersexual behavior. Drawing on perspectives from the fields of psychology and neuroscience, several hypotheses are offered to explain why individuals with ADHD may be vulnerable to engaging in hypersexual behavior. Assessment guidelines are provided to help clinicians differentiate characteristics of hypersexuality from adult ADHD. Finally, recommendations are made for the treatment of adult ADHD in hypersexual patients.

During the past decade, an increasing number of clinicians and researchers have attempted to elucidate the associated characteristics of hypersexual behavior in an effort to provide a greater understanding of this phenomenon (1-4). Several studies have specifically focused on exploring psychopathology in hypersexual populations, including the prevalence of comorbid adult ADHD (5). Although research suggests a high prevalence rate of adults with ADHD among hypersexual men (6), many providers struggle to assess ADHD at the onset of treatment. Moreover, little has been written about why an individual with ADHD may be vulnerable to hypersexual behavior. Future Med

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- Toward an Understanding of Decision Making in Severe Mental Illness
- Kissing or “Oscillation” in Frontotemporal Dementia
- Association Between Clinical Measures and Flortaucipir F18 PET Neuroimaging in Mild or Moderate Alzheimer’s Disease Dementia
- Skin Conductance Levels May Reflect Emotional Blunting in Behavioral Variant Frontotemporal Dementia

Volume 26 • Number 3 • Summer 2014

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What Do We Know about ADHD and Gambling Disorders?

Common Challenges with ADHD:

- Social rejection, loneliness
- Academic underachievement
- Emotional dysregulation
- Difficulties with task-completion
- Poor-self concept, shame
- Diminished identity-formation
- Relationship difficulties
- Attrition from college
- Poor work performance

Increased tendency to ESCAPE, disconnect, numb out, etc…
ADHD and Boredom Proneness

Exploring the relationship between boredom and sustained attention

Ela Malkovsky · Colleen Merrifield · Yael Goldberg · James Danckert

Received: 7 February 2012/ Accepted: 10 June 2012/ Published online: 23 June 2012
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Abstract   Boredom is a common experience, prevalent in neurological and psychiatric populations, yet its cognitive characteristics remain poorly understood. We explored the relationship between boredom proneness, sustained attention and adult symptoms of attention deficit hyperactivity disorder (ADHD). The results showed that high boredom-prone individuals (HBP) performed poorly on measures of sustained attention and showed increased symptoms of ADHD and depression. The results also showed that HBP has covered a range of disparate fields, and the boredom varies according to the context and factors associated with the experience. Boredom is related to decreased attention and reduced productivity at work and school (Kass et al. 2001; O’Pekrun et al. 2010). Boredom is a frequent depressive symptom following traumatic (Kreutzer et al. 2001), and the effects of detrimental to treatment and rehabilitation of patients.
This study examined the extent to which boredom proneness and sleep disturbances were related to attention deficit scores in college-aged adults.

In a sample of 148 college students, Attention scores on the Adult Behavior Checklist were best predicted by Boredom Proneness (BP) subscale scores, which assess one’s inability to maintain internal stimulation and feelings of constraint, and scores on the Epworth Daytime Sleepiness Scale and Athens Insomnia Scale ($R^2 = .57$). Hyperactivity scores were best predicted by the BP subscales, which assess one’s need for a stimulating environment, the perception of time passing slowly, and feelings of constraint, and the Epworth Scale ($R^2 = .51$).

The findings contribute to the understanding of the symptomatology of attention deficit in adults and provide further evidence of the validity of this measure.

Boredom has been commonly described as a negative, dissatisfying emotional state that is mitigated by individual cognitive capabilities or tendencies (e.g., de Chenne & Congruent with the manner in which boredom has been conceptualized above, the empirical literature suggests that boredom-prone individuals perform below average on tasks...
Emotionally avoidant people become numb and detached from both good and bad feelings. True, they’ve avoided pain and negative emotion, but they’ve also diminished or extinguished their ability to feel positive emotions.
Contrast Creates Opportunities for Comparison and Appreciation
Neuroscience Findings

Just a Few Thoughts about ADHD and the Brain

Seed Region

A. Control (n = 17)
B. Control > Persistent ADHD
C. Remitting ADHD > Persistent ADHD

Remitting ADHD (n = 22)
Persistent ADHD (n = 13)

MPFC

David Geffen School of Medicine | UCLA Health System
Difficulties with Sustained Attention and Inhibition of Competing Stimuli
Conflict Monitoring and Resolution

Difficulties with Sustained Attention and Inhibition of Competing Stimuli

- Dorsolateral prefrontal cortex
- Anterior cingulate cortex
Inability to **sustain attention and vigilance** on the target stimuli, and **inhibit focused attention** to the distractor stimuli.
An Attention Model of Gambling Addictions continued

Attentional Model of Gambling Addictions

**Attentive Condition**

- **Target**: Work
- **Distractor**: Gambling

**Inattentive Condition**

- **Target**: Gambling
- **Distractor**: Work

**Signal Strength**
Deficits in the Dopamine Reward Pathway in Adults with ADHD

Evaluating Dopamine Reward Pathway in ADHD
Clinical Implications

Context: Attention-deficit/hyperactivity disorder (ADHD)—characterized by symptoms of inattention and hyperactivity-impulsivity—is the most prevalent childhood psychiatric disorder that frequently persists into adulthood, and there is increasing evidence of reward-motivation deficits in this disorder.

Objective: To evaluate biological bases that might underlie a reward/motivation deficit by imaging key components of the brain dopamine reward pathway (mesoaccumbens).

Design, Setting, and Participants: We used positron emission tomography to measure dopamine synaptic markers (transporters and D_2/D_3 receptors) in 53 nonmedicated adults with ADHD and 44 healthy controls between 2001-2009 at Children's Hospital.
Dopamine, Reward, and Motivation Pathways

Decreased activation of nucleus accumbens in ADHD in rewards

- Lower D2/D3 receptor availability
- Reward deficits with failure to delay gratification, preference for small immediate rewards over larger delayed rewards
- Dopamine deficits linked to symptoms of inattention (e.g. most pronounced in tasks considered boring, repetitive, uninteresting)
- Higher risk / vulnerability for addiction to intensify rewards
Dopamine, Reward, and Motivation Pathways

Lower dopamine receptivity availability in hypothalamic region

- Some evidence for co-occurring hypothalamic pathology with ADHD such as:
  - Sleep disturbances
  - Overweight or obesity issues
  - Abnormal responses to stress
Increased response to negative stimuli and loss of functional connectivity with the MPFC. Thus, it may be that a good nights sleep “resets” the brain to cope with next-day emotional challenges by maintaining integrity of the MPFC-amygdala circuit.
Adult ADHD and Stress Coping: STRESS = ESCAPE = GAMBLE

- Healthy Stress Coping
  - Resources
  - Adaptive Coping

- Appraisal

- Unhealthy Stress Coping
  - Demands
  - Maladaptive Coping

- STRESS
  - Work
  - Depression
  - Anxiety
  - Pain
  - Headache
  - Sadness

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How to Make Stress Your Friend: Dr. Kelly McGonigal

TED

KELLY MCGONIGAL

AUTHOR OF THE INTERNATIONAL BESTSELLER THE WILLPOWER INSTINCT

KELLY MCGONIGAL, PH.D.

THE UPSIDE OF STRESS

WHY STRESS IS GOOD FOR YOU, and HOW TO GET GOOD AT IT

David Geffen
School of Medicine

UCLA Health System
Diagnostic Assessment of Adult ADHD

DSM-5 Changes to ADHD Criteria
Changes from DSM-IV to DSM-5 for ADHD

DSM-5 ADHD Diagnosis in “Neurodevelopmental Disorders” chapter:

1. Examples have been added to the criterion items to facilitate application across the life span;
2. The cross-situational requirement has been strengthened to “several” symptoms in each setting
3. The onset criterion has been changed from “symptoms that caused impairment were present before age 7 years” to “several inattentive or hyperactive-impulsive symptoms were present prior to age 12”;
4. Comorbid diagnosis with autism spectrum disorder is now allowed
5. Change from 6 symptoms to 5 for those > 17 age
6. Impairment to “interfere” or “reduce quality” of work, school, etc…
Criticisms of DSM-5 Criteria for ADHD

- Inadequate information on important role of emotions in ADHD. It does not pick up the impaired motivational aspect of emotions which makes it so difficult for many with ADHD to get started on or sustain effort for tasks not intrinsically interesting to them. And it does not include any symptoms that reflect characteristic problems of persons with ADHD in modulating their experience and expression of emotions.

- DSM-5 does not recognize the importance of problems in regulating sleep and alertness which have been identified in research on ADHD in children and adults.
Assessing Adult ADHD in Patients with Gambling Disorders

1. Self-report questionnaires
2. Collateral information
3. Neuropsychological testing
4. DSM-5 “No biological marker is diagnostic for ADHD.”
5. Diagnostic interview for ADHD (e.g. MINI 6 with ADHD Module)

Note: No biological marker is diagnostic for ADHD. As a group, compared with peers, children with ADHD display increased slow wave electroencephalograms, reduced total brain volume on magnetic resonance imaging, and possibly a delay in posterior to anterior cortical maturation, but these findings are not diagnostic.
Assessment of ADHD requires careful evaluation of the amount of effort an individual must exert to control their cognitive activities.

Screening tools, neuropsychological tests, and scales are correlated with a diagnosis of ADHD but do not designate caseness.
Compensatory/Avoidant Efforts May Hide Symptom Impact

Patients opt out or defer challenging/overwhelming activities (e.g. pursued alternative college education than one desired)

Compensation may be a burden
- Significant efforts required to maintain attention, control behavior
- Overreliance on organizational/reminder systems
- Overreliance on others for structure, deferred tasks
- Longer hours/more time required to compensate for inefficiency*
  - greater frequency of distractibility, mind wandering
  - poor working memory (e.g. necessary for prioritizing)
  - under-estimating time
  - short-cut taking creates additional problems
  - poor planning, tendencies to procrastinate
  - difficulties with multi-tasking/divided attention
Reliable information contributes to a reliable diagnosis
Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or during other activities

- What were your grades like in school, college? Was there any class that was particularly challenging for you?
- Observe how they’ve completed assessment questionnaires
- When you make mistakes at work, what do they involve?
- How would you rate your ability to pay close attention to details? How would you now if you made errors?
Often has **difficulty sustaining attention** in tasks or play activities

- If I’m a video camera watching you read a book for one of your college classes, what would I see happen? Has this pattern always been true for you or can you ever think of a time where it wasn’t true?
- How do you experience lengthy lectures or presentations at school or work?
- What, if any, tasks are particularly difficult for you if they require you to sustain and focus your attention?
Suggestions for Tools to Gather Information about ADHD Symptoms

- Adult ADHD Self-Report Scale (18-Item / 6-Item)
- UCLA Adult ADHD Symptom Scale
- Conners Adult ADHD Rating Scales (Self Report / Observer)
- Wender Utah Rating Scale (25-Item) Cut-Off ≥ 46
- ADHD Symptoms and Role Impact Inventory
- Weiss Functional Impairment Rating Scale Self-Report
- Behavior Rating Inventory of Executive Functions — Adults
Check the box that best describes how you have felt and conducted yourself over the past 6 months. Please give the completed questionnaire to your healthcare professional during your next appointment to discuss the results.

1. How often do you have trouble wrapping up the final details of a project, once the challenging parts have been done?

2. How often do you have difficulty getting things in order when you have to do a task that requires organization?

3. How often do you have problems remembering appointments or obligations?

4. When you have a task that requires a lot of thought, how often do you avoid or delay getting started?

5. How often do you fidget or squirm with your hands or feet when you have to sit down for a long time?

6. How often do you feel overly active and compelled to do things, like you were driven by a motor?

Add the number of checkmarks that appear in the darkly shaded area. Four (4) or more checkmarks indicate that your symptoms may be consistent with Adult ADHD. It may be beneficial for you to talk with your healthcare provider about an evaluation.
Inattention and Time Estimation

An accurate estimation of how long something will take to complete requires several aspects of attention.
Treatment
Mindfulness and ADHD

A Pilot Trial of Mindfulness Meditation Training for ADHD in Adulthood: Impact on Core Symptoms, Executive Functioning, and Emotion Dysregulation

John T. Mitchell, Elizabeth M. McIntyre, Joseph S. English, Jean C. Beckham, and Scott H. Kollins

Abstract

Objective: Mindfulness meditation training is garnering increasing empirical interest as an alternative treatment for ADHD in adulthood, although no studies of mindfulness as a standalone treatment have included adults with ADHD or a comparison group. The aim of this study was to assess the efficacy of mindfulness meditation for ADHD, executive functioning (EF), and emotion dysregulation (ED) in a comparison group. Methods: Adults with ADHD were randomly assigned to a 12-week group-based mindfulness meditation (n = 11) or waitlist group (n = 12). Participants were assessed for ADHD symptoms, EF, and ED at baseline and posttreatment. Results: Posttreatment, mindfulness group participants showed significant improvements in ADHD symptoms, EF, and ED compared to waitlist participants. Conclusions: The findings support preliminary treatment efficacy, though replication is necessary.

Keywords

ADHD, mindfulness meditation training, executive functioning, emotion dysregulation.
Mindfulness and ADHD?
Effects of meditation experience on functional connectivity of distributed brain networks

Wendy Hasenkamp* and Lawrence W. Barsalou
Department of Psychology, Emory University, Atlanta, GA, USA
Goodness of Fit for ADHD and Gambling Disorders

Gambling

- Emotion
- Suffering
- Cravings
- Attention
- Stress
- Boredom
- Impulsivity
Mindfulness and Cravings / Urges

- Addictive cravings are powerful and can be intense
- Patients often get into a tug-of-war with cravings
- Patients often give special status to cravings
- Patients have an adversarial relationship with cravings

Reorganize relationship with craving to co-exist: Neither avoiding nor indulging, just being present in a non-judgmental, curious manner.
Facets of Self-Compassion

Dr. Kristin Neff, University of Texas at Austin
Mediating Effects of Self-Compassion on Problem Gambling

- Shame
- Rumination
- Self-Compassion
- Problem Gambling

Arrows indicate the direction of influence:
- Self-Compassion influences Problem Gambling directly.
- Shame influences Self-Compassion.
- Rumination influences Self-Compassion.
- Self-Compassion influences Shame and Rumination.
Gambling Disorders and Mindfulness

Mechanisms:

- Increased tolerance for uncomfortable feelings
- Increased stress coping
- Increased tolerance for cravings
- Attenuates impulsivity
**Being aware of mind wandering**: This is the practice of being *attentive, alert, and aware* of moments *when* your thoughts wander from the target stimuli (e.g. breathing). The more we practice being aware, the better we become in being aware sooner when thoughts wander and thus we are able to intervene in a more timely fashion. This reduces the amount of time spend being unaware and entertaining wandering thoughts. The moment we become aware of wandering thoughts is a mindful moment.
Noticing where the mind has wandered: Mind wandering can involve a variety of thoughts including planning thoughts, worrying thoughts, temptations, judging thoughts, making up stories in our minds, daydreaming, self-critical thoughts, etc… The practice of “noting” involves simply noticing where our mind has wandered. We don’t judge mind wandering, it is neither good nor bad. We simply just note the process with openness and curiosity.
Letting go of tangential thoughts: Once we note where the mind has wandered, we let go of the wandering thoughts whatever they may be. This practice of letting go is important, especially when our wandering thoughts might lure us to follow them, or make up narratives about them. We must remember, that mind wandering is the antithesis of being mindful. The more we practice letting go and refocusing our attention, the more proficient we will become in our ability to “let go” in real world situations.
Refocusing attention: This is the process of refocusing our attention on being present, moment by moment, and sustaining our attention on whatever target stimuli we have chosen. It is this practice of refocusing that we do again, and again throughout the process of being mindful.
Regular vigorous aerobic exercise can offset stress, restlessness, and a vast array of other symptoms associated with ADHD, anxiety, and dysregulated mood disorders. In consultation with your general physician, it is recommended that you engage in aerobic exercise 3-5 times weekly sufficient that you maintain 60-85% of your maximum target heart rate throughout your workouts.
HEALTHY EATING PLATE

Use healthy oils (like olive and canola oil) for cooking, on salad, and at the table. Limit butter. Avoid trans fat.

The more veggies – and the greater the variety – the better. Potatoes and French fries don’t count.

Eat plenty of fruits of all colors.

Drink water, tea, or coffee (with little or no sugar). Limit milk/dairy (1-2 servings/day) and juice (1 small glass/day). Avoid sugary drinks.

Eat a variety of whole grains (like whole-wheat bread, whole-grain pasta, and brown rice). Limit refined grains (like white rice and white bread).

Choose fish, poultry, beans, and nuts; limit red meat and cheese; avoid bacon, cold cuts, and other processed meats.

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ADHD Treatments: Computer Programs

- Lumosity
- CogMed
Treatments: Neurofeedback

Efficacy of Neurofeedback Treatment in ADHD: the Effects on Inattention, Impulsivity and Hyperactivity: a Meta-Analysis

Martijn Ams, Sabine de Ridder, Ute Strehl, Maxine Breteler and Antoon Coenen

Key Words
Attention Deficit Hyperactivity Disorder
EEG Biofeedback
Hyperactivity
Impulsivity
Inattention
Meta-Analysis

SMR was enhanced and hyperactive symptoms increased, was inhibited. Several variations of this training protocol developed and tested over the years such as enhancing theta, inhibiting beta and theta, enhancing SMR and beta, theta, etc. For an explanation of these different protocols see [paper].

In 2004, Heinrich et al. were the first to report positive Slow Cortical Potential (SCP) neurofeedback in the...
ADHD Medication Treatments

Defer to Social Science Literature

Somewhat Better than Placebo

No Long Term Negative Effects
ADHD and Problem Gambling: A Hidden Disorder

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