ADHD in adults: Assessment and Treatment of adults with ADHD: Issues relevant to clinical practice

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What are your fears about working with Adults with ADHD?
Overview

• Briefly review ADHD and some of main deficits we feel confident about
• Etiology for the purpose of understanding treatments
• Assessment
• Treatment approaches

Overview

• ADHD affects 5-9% of school age children
• 70% of these will continue to have disorder into adolescence
• ADHD estimated to persist into adulthood in 40-60% of childhood-onset cases
  • Prevalence estimates of 4.5% (Wender 2001; Kessler et al., 2009)
  • Faraone et al estimated it at 2.9% for narrow ADHD and 16.4% for broad ADHD
    • Faraone & Biederman, 2005
  • Another study found that 36.3% of individuals fulfilling criteria for ADHD in childhood continued to meet full criteria in adulthood
    • Kessler et al., 2005
  • Even if symptoms decrease over time, impairment does not in 90% of cases (Biederman et al., 2000)
• 20% of parents of children with ADHD will have ADHD themselves (Kooij et al., 2010)
DSM-IV: Inattentive: 6/9

- Fails to give close attention to details or makes careless mistakes
- Difficulty sustaining attention
- Does not appear to listen
- Struggles to follow through on instructions
- Difficulty with organization
- Avoids or dislikes activities requiring sustained mental effort
- Often loses things necessary for tasks
- Easily distracted
- Forgetful in daily activities
**DSM-IV: Hyperactive/impulsive:**

6/9

- Fidgets with hands or feet or *squirms in seat*
- *Difficulty remaining seated*
- *Runs about or climbs excessively*
- Difficulty engaging in activities quietly
- Acts as if driven by a motor
- Talks excessively
- Blurs out answers before *questions* completed
- Difficulty waiting in turn taking situations
- Interrupts or intrudes upon others
**DSM-IV Classification**

- Three main subtypes:
  - Predominantly Inattentive Type
  - Predominantly Hyperactive/impulsive Type
  - Combined Type
  - ALSO ADHD NOS
- Other Criteria:
  - Symptoms caused impairment before the age of 7
  - Pervasiveness across >2 settings
  - Symptoms not accountable by other disorders
  - Impairment
  - Not exclusively during course of Pervasive Developmental Disorder, Schizophrenia, or another mental disorder
    - Eg Mood, Anxiety, Dissociative or Personality Disorder

**Adult ADHD: Does it exist?**

- Historical belief ADHD remits by adulthood
  (Hill & Schoener 1996)
- Consensus Adult ADHD does exist
  (Barkley 2002)
- Cohort Studies supporting adult ADHD concept
  1. Weiss et al’s Montreal Study 1985
    - 63 ADHD + 41 controls, 15 year follow-up
  2. Mannuzza et al’s New York study 1993
    - 207 males, No CD, 15 - 21 yr follow-up
  3. Rasmussen & Gillberg’s Swedish Study 2000
    - 61 ADHD + 46 Controls, 15 year follow-up
    - 10 year follow up of 140 with ADHD and 120 without
  5. Barkley’s Milwaukee and UMASS study 2008
    - Follow up for three decades since 1977: 158 children ages 4-11 years diagnosed as hyperactive child syndrome in 1978-1980
Adult ADHD - Outcomes

- Significant impairment in psychosocial functioning:
  - lower SES and educational attainment
  - more job changes
  - driving infringements and accidents
  - higher rates of separation and divorce
  - parenting difficulties
  - substance misuse
  - Earn less money
    - (Barkley, 2002; Kessler et al., 2005; Faraone 2000; Biederman and Faraone, 2005)

- Rasmussen & Gillberg’s Swedish Study 2000
  - 60% index cases “poor outcome” vs 13% Controls
  - poor outcomes included substance misuse, being on welfare, Personality Disorders, psychiatric illness and involvement in crime

- CHDS Longitudinal study
  - Followed 1000 children aged 8 with attentional difficulties
  - Controlling for confounding, aged 18 increased “psychosocial risk”
  - ADHD predicts academic underachievement
    - (Fergusson et al 1997)

- Milwaukee Study:
  - Only 5% of those with ADHD graduated from college, compared with 35% of the others
  - By age 20, 40% of those with ADHD had given birth to or fathered children; only 4% of the others had
  - ADHD group have worse driving records and are much more likely to have been fired from a job

- Biederman studies:
  - ADHD youth at high risk for a wide range of adverse adult outcomes including:
    - Elevated rates of antisocial, addictive, mood and anxiety disorders

- Neuropsychological profiles of ADHD adults also impaired:
  - Attention and inhibition
  - visual search and perceptual motor speed
  - set shifting and verbal fluency
  - processing speed and memory
    - Boonstra, Oosterlaan, Sergeant, & Buitelaar, 2005; Hervey, Epstein, & Curry, 2004; Lansbergen, Kenemans, & van Engeland, 2007; Schoechlin & Engel, 2005
Health outcomes

- **Accident proneness and injury**
  - Knowledge about safety does not necessarily reduce accidents
  - 16% vs 5% of controls had a severe accident
  - 4 times more likely
  - 2-3X more likely to experience accidental poisoning

- **Driving risks and auto accidents**
  - 3X more likely to have crashes and tend to be more severe crashes
  - Twice as often have speeding tickets

- **Sleep problems** – occur twice as often
- **More unplanned pregnancies** (38% vs 4%)
- **more sexual partners** (19% vs 7%)
- **more sexually transmitted diseases** (17% vs 4%): Barkley 1998
- **More likely to be incarcerated, arrested** (Mannuzza et al., 2008)

And if left undiagnosed until adulthood?

- Rucklidge and Kaplan (1997, 2000) found in a sample of 51 ADHD women and 51 controls:
- **Women with ADHD symptoms**
  - reported more depression
  - reported more anxiety
  - had lower self-esteem
  - were more stressed
  - reported more & longer episodes of depression requiring more treatment
  - reported more dissatisfaction with their childhood, parents, teachers, and peers
  - reported *very little control* over their childhood experiences
- i.e., they showed more evidence of poor psychological functioning
Setting the scene

Etiology as driving treatment choices

**ADHD: Etiology**

- Neuroanatomic
- Neurochemical
- Dopamine/NA
- Genetic D2 receptor genes etc
- Diet
- Environmental
- Family
- Organic/CNS insults
Barkley’s influential ADHD model

- Behavioural inhibition
  - Inhibits likely response
  - Interrupts ongoing responses
  - Controls interference
- Working memory
- Self-regulation of affect
- Internalization of speech
- Motor control/fluency/syntax
- Reconstitution

Behavioural inhibition is critical to performance of other executive functions and for self-regulation of behaviour.

Behavioural dysinhibition
Memory

NO...
I SAI'D WALK
10 SPECD
FIRE,
THEN TURN
AND FIRE

WHEN IT WAS
AN ADVANTAGE
TO HAVE
ADULT A.D.D.
Self-regulation of affect

Organization

“Remember I said I wish I had more arms so I could get more things done? Well, the doctor took care of that problem.”
Complex problem solving

Executive Function and Attention

- EF creates two forms of sustained attention:
  - Contingency shaped (externally maintained)
  - Goal-directed (internally guided and motivated)
- This is where ADHD people struggle
  - poor at tasks involving delayed responding and intrinsic motivation
- Difficulties with:
  - Time, waiting, delays and future orientation
  - Problem-solving, strategy development, flexibility
  - Focusing for long periods of time
How does this theory help us understand the behaviours of ADHD?

- ADHD is a disorder of *performance not necessarily skill*
- A disorder of *doing what you know not knowing what to do*
- The *when* and the *where* not the *how* and the *what*
- Using your *past* at the *point* of performance

Sagvolden et al., 2005: Rewards and Punishments

- Proposal there are rewards and extinction deficits in ADHD
  - Altered reinforcement of novel behaviour
  - ADHD people seem to respond *more* to rewards and *less* to punishment
  - Deficient extinction of previously reinforced behaviour
    - In turn, these problems lead to symptoms we see
  - At neurobiological level, DA neurotransmitters:
    - constantly reprogramming and strengthening neuronal connections associated with reinforced behaviours (adaptive)
    - weakening (extinguishing) other neuronal connections associated with non-reinforced (maladaptive) behaviours
Sagvolden et al., 2005: Rewards and Punishments

- Time available for associating behaviour with consequences will be \textit{shorter} for ADHD individuals than controls if:
  - dopaminergic systems are hypofunctioning
  - there are dysregulated fronto-striatal circuits
- \textit{Implies great difficulty eliminating unwanted behaviours in ADHD}

\textbf{Delay-reward gradient}

Rewards become abnormally low in reinforcing power as they become more distant in time – results in abnormal relative weighting of delayed and immediate incentives. Resulting in overactive and impulsive behaviour.
Assessment

Assessment Issues

- Impairment:
  - Ask them specifically about life, paying bills, how many areas are out of control?
- Review past report cards
- Is there pervasiveness?
- Is there chronicity?
  - Establishing a childhood history is essential – social skills, more immature, more conflicts, engaging in high risk activities
- Comorbidities?
  - Usually ADHD comes first, then comorbid condition
- Family history and current constellation
- Do symptoms make sense?
- Alternative diagnoses
- Consider resilience as well for variability in symptoms

- Best assessment: interview with rating scales across all domains of functioning
  - Also consider other explanations for behaviours you see
  - It’s not until age 27-32 that the individual with ADHD recognizes the symptoms similarly to those around them!
Grade books and report cards tell the story

- Grades up and down with no pattern to changes
- Comments often include:
  - “if only she would work harder or more consistently”
  - “needs to pay more attention to his work”
  - “review work before handing it in”
  - “often daydreams in class and doesn’t seem to listen”
- What is the underlying message?
  - Motivation and effort

Adult Rating Scales and Diagnostic Interviews

- Conner’s Adult ADHD Rating Scale (CAARS) – self and observer report Q: 66 items
  - Various subscales including hyperactivity, inattention/memory problems, impulsivity/emotional lability, problems with self-concept, and DSM-IV scales, ADHD index
  - Long and short version available
  - NO VALIDITY index! So vulnerable to symptom exaggeration (easy to fake)
Adult Rating Scales and Diagnostic Interviews

- **Brown ADD Rating Scale (BADDS):** clinician administered, can also interview sig other on same symptoms – also include a diagnostic form that can assist with interviews: 40 items
  - More focused on inattentive type
  - **Subscales include:** organizing, sustained attention and concentration, sustained energy and effort, managing affective interference, utilizing working memory, total score that gives a probability of ADHD being present

- **ADHD Rating Scale (ADHD-RS)**

- **Wender Utah Rating Scale (WURS):** retrospective self-report questionnaire (25 items)

- **ADHD CGI** 1=not ill, 7=extremely ill

- **Adult Self Report Scale (ASRS)** [www.med.nyu.edu](http://www.med.nyu.edu) (Murphy 2004)
Other tests

- Kiddie-SADS Diagnostic Interview - section on ADHD
  [www.wpic.pitt.edu/ksads](http://www.wpic.pitt.edu/ksads)
- Tests: none are diagnostic but may help clarify areas of difficulty:
  - Conners’ Continuous Performance Test
  - Stop Task
  - IQ tests (high IQ can mask ADHD for longer)
  - Tests of executive function (non sensitive to ADHD)
  - Tests of educational achievement (WIAT-II)
  - But beware: between 35 and 65% of individuals with ADHD show normal responses on tests of attention, memory and inhibition (Barkley, 2010)
- Clinically elevated scores PLUS confident history of ADHD that cannot be better explained by other diagnoses increases chances this is a positive case of ADHD
- Who rates - boss, colleague
How do we make a diagnosis of ADHD?

- Self report and observer report questionnaires (CAARS)
  - Subscales: hyperactivity, inattention/memory problems, impulsivity/emotional lability, problems with self-concept, and DSM-IV scales, ADHD index
- Semi-structured interviews: CAADDID (for ADHD) and SCID (for other Axis I)
- Detailed history
- Interview with parent/spouse if necessary
- Review of reports and report cards
- Typically takes 3-4 hours depending on the complexity of the case

Mike B.

- 22 yr old self-referred from UC
- VIQ:120, PIQ:100 (6 on Coding)
- CAARS >99th percentile (O and S)
- History of LD
- Abused alcohol during teens
- Describes having a “box on the head” to block things out
- Described lots of strategies to cope with ADHD symptoms: others organize him, drumming things into his head repeatedly, suitcase system for clothes
Video of semi-structured interview

Psychiatric conditions that may include attention or organizational deficits

- Schizophrenia
- Bipolar Disorder
- Cyclothymia
- Depression
- Anxiety Disorders
- Antisocial Personality
- Borderline
- Histrionic
- Alcohol intoxication or withdrawal
- Other substance abuse disorders
- Intermittent explosive disorder
- Dissociative disorder
- PTSD
- Conduct disorder
- Learning disorders
- Age-appropriate high activity
- MR
- Stress/environment
Medical conditions that may include attention or organizational deficits

- Head injury
- Dementia
- Delirium
- Tumours – frontal, parietal, temporal
- Tourette’s
- Stroke
- Hyperthyroidism
- Hypothyroidism
- Renal insufficiency
- Hepatic insufficiency
- Anoxic encephalopathy
- Vitamin deficiency states
- Chronic obstructive pulmonary disease
- MS
- Seizures/epilepsy
- Sensory deficits (hearing loss)
- Drug side effects
- Neurological disorders of vigilance

Differential diagnoses and comorbidities to consider

- Anxiety:
  - difficulties with concentrating, irritability
- OCD:
  - avoidance, not completing work, distractibility
- PTSD:
  - hyperactivity, distractibility
- Bipolar:
  - impulsivity, concentration, hyperactivity, racing thoughts
- Borderline Personality Disorder:
  - Impulsivity
- Eating disorders
  - Eating can be done within the context of impulsivity (bulimia)
- Learning Disabilities:
  - academic underachievement, important to look for both
Differential diagnoses and comorbidities to consider (con’t)

- Alcohol and drug addiction
  - Common in ADHD, particularly if left untreated

- Sleep related disorders –
  - could mimic ADHD although individuals with ADHD often have initiation insomnia, restless and intrusive sleep and difficulty awakening

- Abuse
  - Similar presentation in terms of hypervigilance

- Good to have comprehensive medical examination to rule out any organic or other medical causes for behaviours:
  - hyperthyroidism, glaucoma, seizure disorders, autoimmune hypothyroidism, menopause
  - Some recent research suggesting there is a large overlap between ADHD and fibromyalgia

- Consideration of these other conditions essential for a coordinated treatment approach

ADHD and personality

- ADHD in childhood has been identified as a serious risk factor for BPD in adulthood
  - Davis & Gastpar, 2005; Philipsen, 2006

- ADHD in adulthood should not be diagnosed if symptoms are better accounted for by another disorder

- ADHD and BPD share similar personality features
  - Impulsivity
  - emotional dysregulation
  - cognitive impairment (deficits in impulse control)
  - Disturbed interpersonal relationships
  - Low self-esteem
  - States of aversive inner tension
ADHD and personality (con’t)

- Neuroimaging studies show some similar deficits in both
  - e.g., prefrontal cortex, orbitofrontal cortex
  - Dopamine implicated in both

- **How to differentiate?**
  - in ADHD:
    - attention deficit most pronounced in situations of low stimulation
    - aversive inner tension occurs in situations with decreased external stimulation
  - in BPD:
    - dissociative features more common in high stress situations
    - dissociative features often provoked by rejection, failure, being alone

- Fewer difficulties establishing a therapeutic relationship in ADHD

- In terms of general personality structure, studies looking at big five have shown:
  - LOW conscientiousness predicts inatt/disorganization
  - LOW agreeableness predicts hyperactivity/impulsivity
    - Nigg et al., 2002; Parker et al., 2004
ADHD in forensic settings

• ADHD and CD/ASPD a particularly challenging presentation (Hinshaw & Lee, 2003)
• ADHD symptoms prevalent in offender populations
  • McCallon (1998) estimated that 600,000 of more than 1.7 million incarcerated Americans may have ADHD
  • A Canadian study found 63 of 100 inmates had ADHD (DSM-IV based) and 39 of 100 violent offenders in Sweden had ADHD and 40% of longer-term inmates (Ginsberg et al., 2010)
  • data in NZ found high rates:
    • Using T score > 65 on Conners self and parent report:
      • 32 (53.3%) had symptoms consistent with ADHD
      • 50% had both ADHD and LD
      • However, only 8 (17.4%) of the sample had been diagnosed as ADHD, according to parent report
        • Rucklidge, Bateup, and McLean (in press)

ADHD in forensic settings (con’t)

• Another study found 45% of 129 young male inmates met DSM-IV criteria for ADHD
  • Rosler et al., 2004
• Females with ADHD are more likely to be incarcerated at a younger age, have more Axis I disorders, and prevalence of ADHD in incarcerated females is higher than epidemiological studies
  • Rosler et al., 2008
• Also at elevated risk for recidivism
  • Soderstrom et al., 2004
• CAARS now used in correctional facilities
• When inmates treated for ADHD, recidivism rates dropped from 50% to 10%
  • McCallon, 1998
But if they are faking it?

- Can be done, easily! And lots of good reasons to do so...
- However, Harrison et al., 2007: studied ADHD, honest normals and faking group
- The fakers do overpathologize their processing speed (perform more poorly than ADHD subjects) but no different on Conners scales
- Suggest an algorithm be used
- Be suspicious if T score >80 on CAARS-DSM indices and score poorly on processing speed and make lots of commission errors

What’s on for DSM-V?

- A. General Structure: Two options are being considered:
  1) Maintain present criteria but without subtypes and with only a single diagnostic code, or
  2) Discontinue predominantly hyperactive/impulsive and predominantly inattentive subtypes
    - ADHD should be assigned to the criteria currently used to designate the combined subtype
    - Create a new diagnosis of “Attention-Deficit Disorder” (ADD) with its own code (this has become labelled SLUGGISH COGNITIVE TEMPO)
### What’s on for DSM-V?

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<td><strong>B. Changes in Coding Inattention:</strong> Two proposals have been tabled:</td>
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<td>1) Retain the current predominantly inattentive subtype but require that no more than 2 hyperactivity criteria contribute to the diagnosis</td>
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<td>2) Create a new ADD diagnosis with the same inattention criteria as are present in DSM-IV predominantly inattentive subtype requiring that no hyperactive/impulsivity criteria are present</td>
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<td><strong>C. Number of Criteria:</strong></td>
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<td>Add 4 new impulsivity criteria to provide even coverage of hyperactivity/impulsivity and inattention.</td>
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<td><strong>D. Age of Onset:</strong></td>
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<td>1) Broaden the age of onset from “on or before age 7” to “on or before age 12.”</td>
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<td>2) Change indicator of onset from impairment to symptom.</td>
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<td><strong>E. Specification of the Disorder for Adults:</strong></td>
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<td>Reduce criteria needed for any subtype from 6 to 3.</td>
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<td><strong>F. Ascertainment of Cross-Situationality:</strong></td>
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<td>Require that cross-situationality be based on direct report to the current informant or to the clinician by teacher, employer, or significant other.</td>
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<td><strong>G. Wording of Criteria:</strong></td>
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<td>Provide more elaborate descriptions of diagnostic criteria.</td>
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<td><strong>H. Exclusion Criteria:</strong></td>
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<td>No longer regard autism-spectrum or pervasive developmental disorder as excluders.</td>
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Suggested additions for impulsivity

a. Often acts without thinking
   - e.g., often starts tasks without adequate preparation, such as reading or listening to instructions, jumps into activities, speaks out without considering consequences, makes important decisions on the spur of the moment, such as buying items, quitting a job suddenly, breaking up with friend.

b. Is often impatient
   - e.g., grabs things instead of asking, wants others to move faster, wants people to get to the point, often speeds while driving, cuts into traffic to go faster than others.

c. Often rushes through activities or tasks, is fast paced
   - e.g., averse to doing things carefully and systematically.

d. Often has difficulty resisting immediate temptations or appealing opportunities, while disregarding negative consequences
   - in childhood, grabs toys off store shelf, or fascinating dangerous objects or plays with dangerous objects;
   - in adulthood, commits to a relationship after brief acquaintance, takes job or enters into business arrangement without doing due diligence.

Specify Based on Current Presentation

- **Combined Presentation**: If both Criterion A1 (Inattention) and Criterion A2 (Hyperactivity-Impulsivity) are met for the past 6 months.
- **Predominately Inattentive Presentation**: If Criterion A1 (Inattention) is met but Criterion A2 (Hyperactivity-Impulsivity) is not met and 3 or more symptoms from Criterion A2 have been present for the past 6 months.
- **Predominately Hyperactive/Impulsive Presentation**: If Criterion A2 (Hyperactivity-Impulsivity) is met and Criterion A1 (Inattention) is not met for the past 6 months.
- **Inattentive Presentation (Restrictive)**: If Criterion A1 (Inattention) is met but no more than 2 symptoms from Criterion A2 (Hyperactivity-Impulsivity) have been present for the past 6 months.
ADHD: TREATMENT COMPONENTS

- Medical Interventions
- Psychosocial: Home + Work
- Education
TREATMENT: Main Issues

- Education
- Learning to manage symptoms across lifespan
- Instil hope
- ADHD as a handicapping condition
- Treatments more effective if at point of performance
- Treatments must be sustained:
  - Analogy to wheelchair and the disability
- Not a huge database of empirical work with ADHD adults (but rapidly growing)
  - Relying on anecdotal reports and extensions from childhood literature

Pharmacotherapy and Adult ADHD

- Much of medication management of ADHD adults based on experience gained from treating children
- Unlike child studies, 20-50% of adults considered non-responders due to insufficient symptom reduction or inability to tolerate medications
  - Dodson, 2005
- Response rates for stimulants range from 25% to 78% for methylphenidate and 54% to 70% for amphetamine (Davidson, 2008)
- Recent meta-analysis of 11 studies should EF of .67 for stimulants and .59 for non-stimulants (Mészáros et al., 2009)
  - However, another meta-analysis showed EF of .42 (Koesters et al., 2009) – they question whether MPH should be a first line treatment
- Concerns regarding the potential for abuse and diversion of meds
- Strattera (atomoxetine) appears to offer a nonabuse potential
  - Works on noradrenergic system
  - Slower response (but lasts 8 hours or more)
  - Initial studies suggest as good as stimulants
  - Some worries about increase suicidal thoughts (FDA warning; only noted in children)
  - Response rates estimated between 48-56% (Durell et al., 2010)
Pharmacotherapy and Adult ADHD

- Exclusion: glaucoma and uncontrolled substance use disorder
- In adults:
  - Responses are more variable
  - Weight based nomograms not that useful to predict dose as efficiency of absorption/metabolism is unpredictable
  - However, once dose established, duration of action stable and predictable over entire lifespan
  - Each dose treats a discrete episode in life
- Medications cannot treat widespread problems already wrought by ADHD, particularly if gone undiagnosed until adulthood
- Long-term studies show that most adults with ADHD discontinue their medication

Long-term studies on medications

- MTA shows even when medicated, outcomes are still poor (Molina et al., 2009)
- Report from Australia (The Raine Study; Smith et al., 2010): using a birth cohort showed that at 14 years, children using stimulants were more likely to perform below grade level and had greater diastolic blood pressure if consistently received stimulants over time
- A recent study of a mostly unmedicated population of adolescents in Finland: found they were functioning very similarly, despite lack of medical input, to American counterparts who are generally well medicated....(Smalley et al., 2007)
- Long-term administration of methylphenidate has been known to result in reduction of brain dopamine transporter density in the striatal system (Vles et al., 2003).
- It has been speculated in some vulnerable patients on MPH:
  - a failure to downregulate dopamine transporter with chronic dopamine flooding of prefrontostriatal circuitry may lead to:
    - concurrent somatic delusional/hallucinatory experiences, fluctuating in content and severity
  - Rashid et al., 2007
Medications in NZ

Three funded preparations:

- **immediate release (Rubifen, Ritalin) MPH Immediate Release**
  - Rapid absorption and action within 1 hour
  - Lasts for 4 hours
  - Given BD or TDS
  - Usually given at breakfast and at lunch time
  - Effective dose of MPH is 0.3-1.0mg/kg /day.

- **slow release (Ritalin SR and Rubifen SR) MPH Slow Release**
  - Delayed onset of action for 1 to 2 hours
  - Effect lasts 8 hours
  - Equivalent to same dose of immediate release (IR) i.e., 20mg SR = 2 doses of 10mg IR given 4 to 6 hours apart
  - Can be combined with immediate release formulation in morning to avoid the initial delay in onset of action
  - Can help with compliance
  - Effects can last into the evening and cause difficulty going to sleep

- **extended release (Concerta) MPH Extended Release**
  - Given once daily
  - Provides 12 hour coverage
  - Funded on special authority
  - Less abuse potential
  - Consists of immediate release and slow release formulations

Other medication options (from Health Pathways)

- **Dexamphetamine**
  - Not used very often and only in those who have not responded to MPH
  - Twice daily
  - Onset of action is slower than MPH

- **Atomoxetine (Strattera)**
  - New noradrenergic reuptake inhibitor
  - Now funded in New Zealand for those who have not responded to stimulants or where there is a significant risk of diversion
  - Cannot be used in combination with stimulants
  - Lasts for 24 hours
  - Low abuse potential
  - Can be useful if co-existing anxiety
  - Liver abnormalities may be a rare

- **Clonidine**
  - 2nd line choice
  - Used for its sedative properties
  - Can be used at night in combination with a stimulant
  - Not commonly used now in Canterbury

- **Antipsychotics**
  - Last choice
  - Use for short term only due to side effects

- **TCA (Tricyclic Antidepressants)**
  - Cardiac concerns.
Pills are no substitute for skills

Meds *turn the volume down on* symptoms but can’t teach concrete coping skills

Summary of the psychosocial txs that have been empirically tested for adult ADHD
Group therapy with ADHD

- Philipsen et al. (2008): 72 ADHD adults (81.9% had comorbid depression) assigned to 13 two hourly sessions at 4 different therapy sites
  - 61 combined, 11 inattentive (29:43 F:M)
  - 48 medicated
  - 66 completed treatment
- Covered mindfulness, chaos and control (addressing disorganization), addressing dysfunctional behaviour, emotion regulation, impulse control, stress management, abuse, relationships, and outlook
- Therapy led to improved ADHD symptoms, depression, and personal health status (p<.001)
- Tx site and medication did not account for improvement
- Others have also found group tx to be effective (e.g., Stevenson et al., 2002; Virta et al., 2008; Bramham et al., 2009) in improving certain aspects of ADHD (eg motivation) - about 30% response rate
- In those who benefit, changes can be largely maintained over long term follow up – 6 months (Salakari et al., 2010)
Mindfulness for ADHD

- Hesslinger et al (2002) suggest structured skills training based on Linehan’s DBT can help –
  - Preliminary results based on 8 receiving this treatment (grp work), 7 other treatment
    - Tx including mindfulness, chaos and control, neurobiology of ADHD, emotion regulation, impulse control, stress management, sessions with partners, ADHD in relationships
  - medication was left to the decision of the pt.
- + Change noted on all psychometrics
- Improved neuro functioning
  - Idea that mindfulness can target poor concentration
  - Distress tolerance can target disorganization
  - Emotion modulation can target hot temper and affective lability
  - Interpersonal effectiveness can target disturbed and chaotic interpersonal relationships (Philipsen, 2006)

Group Meta-Cognitive Therapy for adults with ADHD

- Developed by Solanto and colleagues (2008)
- Exclusively focused on time management, organizational and planning skills
- Delivered as group tx: 8-12 wks
- 38 adults; 68% concurrently taking meds; 30 completers
- Focus on repetition
- Skill based: breaking down complex tasks, minimizing distractions, prioritizing effectively, visualizing long term rewards, effective use of planners, breaking down tasks – if can’t get going means the first step is too big
- Take-home exercises
- 57.9% comorbid depression; 39.5% had comorbid anxiety
- Found significant change in areas targeted, no change in hyperactivity, large effects
- Uncontrolled trial and therefore not sure if change is due to the specific treatment provided or other therapeutic variables
- Has since been replicated as an RCT (Solanto et al 2010) – 45 per group, 12 week treatment: metacognitive therapy vs supportive therapy – MCT sig better: about 50% response rate
Cognitive Behavioural Therapy adapted for the adult with ADHD

Part of our therapy is about developing a good fit between the individual and his or her context
Cognitive therapy for Adult ADHD

- Safren et al (2005): one of few studies looking at CBT in conjunction with meds:
  - 31 men and women with ADHD were randomly assigned to meds only, or meds plus CBT
  - All participants were ones who had not achieved symptom control with meds alone
  - Core modules:
    - psychoeducation about ADHD and training on organization and planning
    - Learning skills to reduce distractibility – figure out normal attention span and then work within that limit
    - Cognitive restructuring
  - Optional modules:
    - procrastination
    - Anger and frustration management
    - Communication skills

Cognitive therapy for Adult ADHD (con’t)

- Probably more effective than for ADHD children as adults have better cognitive skill and self-referred rather than referred by parent
- Significantly more treatment responders among patients who received CBT (56%) compared to those who did not (13%) (p<.02).
- Those in CBT grp, also showed reductions in anxiety and depression
- Improvement in ADHD symptoms independent of changes in depression but don’t know if change associated with therapist contact as no control therapy used
- Data support hypothesis that CBT for ADHD adults with residual symptoms is a feasible, acceptable, and potentially efficacious next-step treatment approach, worthy of further testing
- Have since done an RCT comparing CBT with relaxation (Safran et al., 2010): 86 adults with ADHD treated with meds – 12 wks individual tx – CBT sig better and gains maintained to 6 and 12 months
Cognitive therapy for Adult ADHD (con’t)

- Rostain and Ramsay (2006):
  - combined treatment approach for adults with ADHD
  - 6 month course of concurrent pharmacotherapy (ADDerall) and CBT (16 sessions)
- 43 participants with comorbid diagnoses included
  - 70% combined type, 30% inattentive type
- CBT involved psycheducation, coping strategies, cognitive & behaviour modification, developing strengths & supportive resources
- Evaluated outcome using BADDS, CGI, BDI-II, BAI, Ham-D, Ham-A
- 41% showed significant improvement based on BADDS scores
- Significant changes on all self-report scales & CGIs
- 81% of participants reported at least mild improvement, 70% reported moderate to significant improvement

Cognitive therapy for Adult ADHD (con’t)

- More and more adults seeking psychotherapy to complement medications
- **Assumption**: neuropsychological difficulties that stem from disorder often lead to dysfunctional patterns of thinking, feeling and behaving
- Frustrations that arise from ADHD become entwined with patient’s most deeply held beliefs and personal identity
- CT focuses on challenging deeply held beliefs AND developing coping strategies for managing ADHD-related difficulties
Cognitive-behavioural model of adult ADHD

Core (neuropsychiatric) impairments in:
- Attention
- Inhibition
- Self-regulation (impulsivity)

History of
- Failure
- Underachievement
- Relationship problems

Negative thoughts and Beliefs
- e.g., negative self-statements
- Low self-esteem

Mood disturbance
- Depression
- Guilt
- Anxiety
- Anger

Failure to utilize compensatory strategies such as:
- Organizing
- Planning (i.e., task list)
- Managing procrastination, avoidance & distractibility

Functional impairment

Safran et al. 2005
But important to recognize: ADHD is not caused by maladaptive cognitions

Rather the absence of a triggering thought or distractibility...
Maladaptive schema likely develop later as they become more self aware of their difficulties

A good case conceptualization

- Consider developmental histories of repeated failures, underemployment
  - Need to trace these developmental challenges
  - Listen to how poor time management, chronic forgetfulness contribute to old and existing problems
  - Maladaptive core beliefs often stem from living with ADHD: e.g., “I’m a failure”, “I’m incompetent”
- Consider role of compensatory strategies, most common one being avoidance and defensive anger
  - Maintain core beliefs and enable the patients to avoid facing them
- Goal of case conceptualization is to create a map to make sense of these meaning making patterns
Attend to the grief reactions

Be supportive, empathic listener

Structuring the therapy session

- Don’t allow for rambling and free-associating
- Consider audio taping for memory problems
- Consider note taking as essential
CT for ADHD in practice

- Diagnosis serves to reframe – begins with challenging core beliefs of “I’m lazy”
  - Also serves as a sense of relief
  - Coherent nonblaming explanation for main source of their struggles
- Assess readiness for change
- Prioritize goals and sort out a problem list
- Psychoeducation to demystify misconceptions about treatment and shed light on nature of this syndrome
- Attend to grief reactions and anger for unnecessary frustrations, lost opportunities, ongoing consequences of past impulsivity
- Have clear treatment goals
  - E.g. redefine “getting an A” to going to class, spending adequate time on projects, making use of academic support services

CT for ADHD in practice

- **Therapeutic alliance** as essential in tx
  - Also consider some therapy interfering behaviours are part of ADHD (e.g. being late) and therefore may need to make that a treatment goal
- Active involvement of therapist – cannot afford to be passive working with this population
  - Must keep session focused, on agreed upon agenda
  - If deviating from agenda:
    - “Let me interrupt you for a moment. What we are talking about is interesting, but it seems we are drifting from the agenda we set for today. This has been a tendency you have said you want to change. Would it be alright if we take a few moments to refocus on what our priority today should be?”
CT for ADHD in practice

- **Challenging beliefs:**
  - once they start to overcome core difficulties, can then challenge core beliefs associated with those difficulties
  - Reframing and erasing longstanding negative messages from teachers, parents and peers internalized over years
- **Core beliefs often cluster around notions of:**
  - failure, defectiveness, social undesirability, mistrust of oneself
  - Can also lead to hopelessness and depression
Self-talk

- ADD happens
  - Blunder
  - Disorganize
  - Shut down
- Negative self-talk
  - “I’m so stupid”
  - “forget all this garbage”
  - It’s just an excuse”
  - “what’s the matter with me?”
  - “It’s hopeless”
  - “I’m a mess”
- Depression

- When ADD is more accepted
  - ADD happens
  - Positive self-talk
    - “It’s that ADD again”
    - “It’s just an ADD attack, ride it out...”
    - “It’s a signal that too much is going on.”
    - Take time to think it through
    - You are able to separate from the ADD

CT for ADHD in practice

- Cognitive interventions: listening for examples of patient’s cognitions: “I totally messed up”, “I fail at everything I try.”
  - Insights into core beliefs, automatic thoughts – use socratic questioning to help consider alternative interpretations
  - Use daily thought records BUT can be frustrating for this population so may be better to talk it through rather than write
  - Downward arrow technique – assuming for a moment that thought was true, what would that mean to you?
  - Challenging beliefs about medications
- BOTTOM LINE: treating people with ADHD requires a rethinking of various traditional components of therapy
CT for ADHD in practice

- **Behavioural interventions:**
  Focus on gaining new skills, new experiences and hence challenge maladaptive beliefs
  - Address compensatory strategies, e.g., anticipatory avoidance:
    - Putting off a necessary task assuming it will be overwhelming, stopping task for immediate relief
      - negatively reinforces avoidance as a coping behaviour
    - Leads to more avoidance
  - Must do gradual exposure to work, *beginning in session*
  - Work on it for 10 minutes
  - Structure and introducing time management
    - Setting small goals and then building
    - Make time physical (clocks, blackberries, day planners)

Addressing the behaviour difficulties
CT for ADHD in practice

- *Environmental engineering*
  - Making patient’s environment user friendly
  - Hooks, shelves, files, planners
  - Keep things visual
  - Notebooks for important thoughts and to eliminate *all* pieces of paper
  - Develop a FILING system
  - Have several sets of keys so losing one isn’t a disaster

- *Assertiveness training:*
  - handling frustrations constructively
Clinical Vignette: Robyn

- 51 year old woman, student at the University
- Past assessment: counselling services, IQ estimated at 120, PIQ slightly lower than VIQ, lowest score in processing speed
- Classic inattentive symptoms present throughout life
- Disorganization
- Chronic nature of symptoms confirmed with interview with spouse and lecturer
- “school was hell, home was hell”, school was a struggle, constantly criticized by teachers
- Seven schools
- History of depression
- Very poor social skills
- Brown: 99th percentile
- Responded well to medication
Using the internet to remind oneself of appointments

1. Sign up for a Gmail account and a vodafone account
2. Use the Google Calendar(GCal) for scheduling and use vodafone for receiving mobile updates via SMS
3. With GCal events can be added directly or through a quickadd procedure which creates links in mail received via gmail.
   1. One can have gmail account set to receive other emails such as university mail. (See Settings->Accounts under Gmail).
      1. You may in turn access Gmail with Outlook or Mail.app with minimal setup as well.
4. Under GCal account go to Settings->Mobile Setup, and add the mobile number, you'll receive a txt with the confirmation number to enter below. Once you are confirmed go to Settings->Calendars->(Your Calendar), and click on the notifications on the far right. Then setup Event reminder to "By Default remind me via" SMS and the time before notification.
5. From here you may additionally add syncing from GCal to Outlook/Thunderbird/iCal with Gyncit/GCalDaemon/SpanningSync respectively, though there is a sliding scale of cost to difficulty in their setup.
6. Another option for any other ADHD subjects is a new site, www.skoach.com which is a focused planner for people with ADHD which appears fairly well done if not still early in development. It is very persistent with its reminders.
Reverse engineer EFs to accommodate ADHD

- externalize important information:
  - make lists, use signs, post notes
- externalize time periods related to tasks
  - use of timers
- break up future tasks into many small ones (one daily)
- externalize sources of motivation:
  - token systems (if make sense)
- permit more external manipulation of task information

Key is to persist with these methods until they become automatic

(That may be a very long time)
Helping with distractibility

- First determine how long they can sustain attention for on a boring task without stopping
  - Help client to function at his/her optimal level
- Use problem solving to break a large task into smaller chunks
  - Ex: if determine 10 minutes is max, break paying bills down into 10 minute chunks
  - Start activity and time it, average over several goes
  - Try to increase amount of time minute by minute
Helping with distractibility

• Introduce idea of *distractibility delay*:
  • Timing client’s ability to stay focused on difficult activities:
    • reducing tasks into chunks that take approximately that length of time
  • When distractions pop into head, write them down and then return to task (don’t do anything about it now)
    • “I will worry about that later”
    • Look at distraction list LATER

• Control work environment to reduce likelihood of distractions
  • eg phone ringing, instant messenger, internet, TV, turn desk away from window
  • Develop *Environmental Reduction Strategies* for each distraction
  • *Have sticker dots placed around the house to remind you to use skills for ADHD!*
    • i.e. on the phone, computer, refrigerator
  • *Have an alarm sound on the hour to remind you:*
    • “Am I doing what I am supposed to be doing? OR did I get distracted?”
  • *Evaluate pros and cons (short and long-term) of procrastination, challenge automatic thoughts related to procrastination*
## Troubleshooting difficulties

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>SKILL TO CONSIDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure to give adequate attention to details; making careless mistakes in work or other activities</td>
<td>Recheck your attention span and your ability to break activities into units where you can sustain attention. Use your cues (beepers, dots) to remind you of core responsibilities at hand.</td>
</tr>
<tr>
<td>Difficulty sustaining attention in tasks</td>
<td>Check your management of your space (are your environments too distracting?)</td>
</tr>
<tr>
<td>Failure to listen when spoken to directly</td>
<td>Talk to others about finding optimal times for conversations, or use shorter units of talk.</td>
</tr>
<tr>
<td>Difficulty organizing tasks in terms of importance</td>
<td>Use your notebook and rating system. Use your triage and filing systems.</td>
</tr>
<tr>
<td>Procrastination</td>
<td>Use problem solving and adaptive thinking.</td>
</tr>
<tr>
<td>Losing things necessary for tasks or activities</td>
<td>Use a single work area. Use your triage and filing systems. Work with another person to reduce clutter.</td>
</tr>
<tr>
<td>Becoming easily distracted by extraneous stimuli</td>
<td>Manage your environment and use your distractibility delay.</td>
</tr>
<tr>
<td>Being forgetful in daily activities</td>
<td>Use your beeper system and your to-do list along with your calendar.</td>
</tr>
</tbody>
</table>
Treatment approaches in summary

- Keep work periods short
- Reduce delays, externalize time
- Externalize important information
- Externalize motivation
- Externalize problem-solving
- Use immediate feedback
- Increase frequency of consequences
- Increase accountability to others
- Use more salient rewards
- Change rewards periodically
- Use rewards before punishment
- Anticipate problem settings – make a plan
- Keep a sense of priorities
- Maintain a disability perspective

Addressing organizational tasks etc should in turn effect relationship problems that may also be present
Guide to organizing home and office

- Missing conductor of orchestra
- Select a reward
- Use of a timer as a motivational strategy
- Play favourite CD
- Break it down
- Lists, use of clear containers, launch pads for essential items at door, files
- Ten minute pick up
- Fifteen minute rule to get started on procrastinating items
- Throw away/give away boxes
- “on the fly” - pass an open drawer close it, pass a full waste basket, empty it

Some rules to bear in mind (from Barkley’s latest book: Taking charge of adult ADHD 2010)

- Stop the action
- See the past...and then the future
- Say the past...and then the future
- Externalize key information
- Feel the future: what will it feel like to get this done?
- Break it down and make it matter
- Make problems external physical and manual
Succeeding in the workplace

- Careful consider career choices
- **Inattention:**
  - Work when others not there, at home for quiet
  - Use white noise to drown down office noise
  - Route calls to voice mail and respond only once a day
  - One task at a time
- **Impulsivity:**
  - role play, anticipate problems that may trigger impulsive reactions
- **Hyperactivity:**
  - breaks, take notes in meetings to prevent restlessness, move around, exercise
- **Memory:**
  - use tape recording devices or take copious notes in meetings
  - Write checklists for complicated tasks
  - Use a bulletin board or a computer reminder for announcements and other memory triggers
  - Write notes on sticky pads
Succeeding in the workplace (con’t)

- **Boredom blockouts:**
  - use timers, break up tasks, find a stimulating job!

- **Time management:**
  - time line charts, reward self, use watches, buzzers, planners
  - Programme computer to beep 5 minutes before every meeting in calendar
  - Avoid over scheduling by overestimating how long each task will take

- **Procrastination:**
  - break it up, rewards
  - Ask for deadlines

- **Paper trails:**
  - handle a piece of paper only once (OHIO)
  - Make filing fun with colour coding!

- **Social skills issues:**
  - ask others for feedback, observe others

Coaching

- First put forward by Hallowell and Ratey
- Relatively new field become more prominent in recent years
- Currently no published research evaluating effectiveness of coaching as intervention to ADHD
- No specialized schooling or licensing required to become a coach
- Anecdotal evidence and pilot work suggesting it may be helpful supplement to other interventions (Kubik, 2010)
- Seeks to address daily challenges of living with ADHD
  - Coach helps client learn practical ways to initiate change
  - Helps them maintain focus to achieve identified goals
  - Translate abstract goals into action
  - Build motivation and learn to use rewards effectively
- Coaching is NOT therapy – focus on the what when and how, not the why
- Could be short daily calls plus email
Other avenues being explored

- Computerized training of working memory (off meds)
  - Can be improved in children (no studies of adults to date)
  - Klinberg et al., 2005
- Attention Process Training has been shown to make a difference (3 times a week for 12 weeks)
  - Sohlberg & Mateer (1989)
  - Targets sustained, selective and higher levels of attention
  - Findings of several studies support notion that systematic practice on attention demanding tasks can result in improved attentional performance
- Adults have been trained on attention switching and have been shown to improve these deficits
  - White & Shah, 2006

What about “alternative” treatments?
Not huge body of literature on micronutrients and ADHD...

Vitamins and mineral supplements:
- Supplements investigating one ingredient at a time have shown some promise BUT may be limited
  - Zinc levels found to be correlated with inattention and RCT found zinc sulphate better than placebo in improving hyperactivity/impulsivity, no effect on attention (Arnold et al., 2005, Bilici et al., 2004, Akhondzadeh et al., 2004)
  - Iron supplementation with anemic children shows some improvement (Sever et al., 1997)
  - Magnesium improves hyperactivity (Starosta-Hermelin & Kozielec, 1997)
- Amino acids:
  - Preliminary pilot study suggests carnitine (naturally occurring mammalian metabolite) improves arithmetic performance in ADHD; but mixed RCT results: 1 carnitine > placebo, 2 no difference (Arnold et al., 2005, Van Oudheusden and Scholte, 2002, Torrioli et al., 2008)
  - Mixed data but no clear support for tyrosine, phenylalanine, SAMe; all old studies (Wood et al., 1985, Nemzer et al., 1985, Reimherr et al., 1987, Shekhi et al., 1990)
- Botanicals:
  - Pycnogenol: one +, one – RCT (Trebatickova et al., 2006, Dvorakova et al., 2007, Tenenbaum et al., 2002)
  - Ginseng and Ginkgo: some preliminary + results with open trial, 1 more recent RCT showed that ginkgo NOT as effective as methylphenidate in RCT (Saleh et al., in press)
  - No effect with St John’s Wort based on RCT (Weber et al., 2006)
  - A combination of a variety of herbs more promising: RCT showed improvement on TOVA performance in active group versus placebo (Katz et al., 2010)

Omega-3s
- Hypothesis that lack of omega 3s (and other essential minerals & vitamins) leads to many psychiatric & neurodevelopmental disorders
- Dietary supplementation with fish oils appear to alleviate ADHD related symptoms in at least some children
  - Research shown omega-3 fatty acids critical to development of visual system
  - Chronic omega-3 deficiencies can reduce dopamine and its binding to D2 receptors
- Omega-3 not supported as 1st treatment for ADHD but due to safety & general health benefits, promising alternative to standard tx
  - 6 RCTs: 2 no effect, 2 active>placebo; 2 mixed
  - May be more useful in children (adults?) with comorbid diagnoses, especially dyslexia/aggression/DCD
  - Can improve sleep
Open label trial using micronutrients with adults with ADHD and mood instability

Rucklidge, Taylor, & Whitehead, 2011, Journal of Attention Disorders

- 14 participants (5 female)
- Mean age: 37.53 (9.56)
- Diagnosis:
  - SCID-I and CAADID (structured interview assessing DSM-IV based ADHD symptoms) and
  - >70 on one of the DSM based scales of CAARS (self/observer)
- 6 (43%) ADHD Pred Inatt; 8 (57%) ADHD combined
- Co-occurring current diagnoses:
  - 12 Mood Disorder (9 MDD/3 BDII 85.7%), 6 Social Phobia (42.9%), 3 GAD (21.4%), 3 drug/alcohol abuse/dependency (21.4%)
    - Mean GAF at baseline = 53.71 (6.26)
  - CGI-ADHD: 4.86 (.35) – moderately ill range
  - CGI Dep: 4.14 (1.29) – moderately ill range
- Mean visits: 6.29 (.99)
ADHD and emotional lability/anger related measures (self)

Open-label trial using micronutrients for the treatment of ADHD and mood dysregulation:
Rucklidge, Taylor, & Whitehead, in press, Journal of Attention Disorders

**p<.01, ***p<.001

ADHD and emotional lability/anger related measures (observer)

***p<.01, ***p<.001
How is this possible???

*Nutrients affect brain function*

- We are what we eat --- *how could it be otherwise?*
  - Brains can be altered *prenatally* by adjusting nutrients
  - Brains can’t function *postnatally* without adequate nutrients

<table>
<thead>
<tr>
<th>Brain</th>
<th>only 2% of our weight accounts for 75% of our metabolic demands</th>
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Percent showing significant improvement

- **Mood**
  - >50%: 83%
  - <50%: 17%

- **Hyperactivity Impulsivity**
  - >30%: 71%
  - <30%: 29%

- **Inattention**
  - >30%: 71%
  - <30%: 29%
The diet factor

- **Diet**
  - Studies contradictory: some find improvements, some don’t
    - Likely at least 5% of individuals with ADHD are greatly influenced by food additives and a small minority have idiosyncratic reactions to some foods like wheat, dairy, chocolate
  - Worthwhile for parents/adults to FIRST modify diet for several weeks prior to resorting to medication
  - Recent work suggests ADHD elevated in celiac disease and gluten free diet can improve ADHD symptoms (Niederhofer et al., 2006)
  - Small effect associated with diet but gathering momentum again
    - Howard et al (2010) found that ADHD is associated with a “Western” dietary pattern in adolescents – ie highly processed foods

- **Sugar**
  - Very controversial; however, meta-analyses suggest that it DOESN’T have any adverse influence on behaviour (Benton, 2008)

Finally, how to tell if your treatment is working
Monitoring treatment

- Use a standardized instrument!
- Aim for something simple and brief
- Consider weekly
  - Conners, BDI, ADHD symptom rating scale (both self and family member to complete)
- Longer ones at longer intervals
  - Outcome Questionnaire, CAADID impairment
- Plot over time

Evaluating treatment

- **Hyperactivity:**
  - fidgeting and restlessness decrease, pt can stay at desk or dinner table or in movie theatre
- **Inattention:**
  - concentration greatly improved, can concentrate when they want to, attention to spouse improves, better marital relations
- **Mood lability:**
  - highs and lows decrease, more stable
- **Temper:**
  - threshold for outbursts is raised, anger outbursts less frequent
- **Disorganization:**
  - improves, pt may spontaneously establish orderly strategies
- **Stress sensitivity:**
  - can take life problems in their stride, less hassled about daily existence
- **Impulsivity:**
  - do not interrupt others as much, think before they speak, more tolerant drivers, less impulsive shopping
    - Wender et al (2001)
The effect of labeling

- “When I was diagnosed and labeled, it was one of the most cathartic points in my life.”
- “It made such an impact on how I felt about me.”
- “It was a relief to get a name for it. It was very freeing for me.”
- “Now that I know the problem, I have more chance of finding the solution so that I have more control over my life.”
- “I can see the face of the monster. If I know what it is, I can learn how to handle it.”

Take home message

- Adult ADHD does exist
- Adult ADHD is likely very prevalent in forensic populations
- Impairment can be substantial including higher rates of learning difficulties, mood problems, anxiety, substance abuse and crime
- Treatments include medication and CBT – evidence continues to be limited
- Diagnosis is important for case conceptualization and for appropriate clinical care
We have a growing problem on our hands...

- Our research unit assessed 80 adults for ADHD in 2009 as part of 2 PhDs and 1 Masters thesis
- We received over 500 public inquiries over a two week period across NZ for participation in the micronutrient trial
  - 40 were eligible and currently enrolled
- DSM-V may reduce the number of symptoms required for an ADHD diagnosis in adults from 6 to 3 – this will increase the number of people who will meet diagnostic criteria
  - Symptoms will also become more age appropriate...
- There are 269,700 adults in Christchurch, based on an estimate of 4.3%, that is 11,600 with ADHD...
- With growing concern about our current treatments, lack of long-term efficacy, we need to invest in other options and research