adult adhd TOOLKIT
PROFESSIONAL EDUCATION

CADDRA
CANADIAN ADHD/ADD RESOURCE ALLIANCE

Canadian ADHD Practice Guidelines: CADDRA 2008

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Canadian ADHD Practice Guidelines (CAP-G)

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Preface And Acknowledgement

The Canadian Attention Deficit Hyperactivity Disorder Resource Alliance (CADDRA) is a national independent not-for-profit association whose members are drawn from Family Practice, Pediatrics, Psychiatry and Child Psychiatry. We support individuals with Attention Deficit Hyperactivity Disorder (ADHD) and their families.

The Canadian ADHD Practice Guidelines (CAP-G) were constructed to help Canadian physicians diagnose and treat ADHD. The CAP-G Committee is part of CADDRA and is composed of experts selected to represent different specialties from across Canada based on their contributions to treatment, education and research in the area of ADHD.

These guidelines are unique in that they:
a) have been produced by a multidisciplinary team
b) are specific to Canadian practice
c) include the entire lifespan of this disorder
d) speak to diagnosis and treatment in real life conditions of practice where resources are limited (Section 1)
e) recognize that ADHD is a disorder which will require treatment using a shared care model between specialists and primary care practitioners. For this reason the guidelines stipulate both what can be handled in primary care as well as guidelines for referral to specialists.

The editors have been careful to identify which facts are evidence-based EB and which are consensus-based CB. This information is noted in the page margins or in the text. EB data is cited in the literature that is referenced at the end of the guidelines. CB data was produced, as it suggests, by a consensus of the experts within the CAP-G Committee after careful and rigorous consideration of the current facts. CB decisions have been made if there were no current EB data available to deal with a specific clinical issue or where the EB data may have been impractical in the Canadian environment.

The 2008 CAP-G is the compilation of almost three years of work. The CAP-G Committee acknowledges the tireless efforts of our editorial group headed by Dr. Anne-Claude Bédard, Director of Internal Development at CADDRA, and Heidi Bernhardt, National Director of CADDRA. Also, Dr. Annick Vincent was extremely helpful in the development of the French version of these guidelines. Lastly, we thank Dr. Laurence Jerome and Dr. Sam Chang for acting as external peer reviewers for the contents of these guidelines.

This project represents a unique and important endeavour. The collaboration of different disciplines in a national effort to improve the care of those with ADHD across the lifespan will lead to both cost-effective and realistic delivery of services within the confines of the current health care system. We believe that this will be useful to Canadian clinicians. We also hope that as care for ADHD improves and changes on a global level, this endeavour may be useful to clinicians in other countries who are working to set up better systems of service delivery.

Disclosures

Members of the CADDRA Guidelines Steering Committee wish to make the following disclosures:

Dr. Anne-Claude Bédard: McNeil Pharmaceuticals (USA) (Advisory Board, Speakers Bureau).

Dr. Atilla Turgay: AstraZeneca Canada Inc., Canadian Counseling Foundation, Celltech Pharma, Children's Hospital of Eastern Ontario Foundation, Eli Lilly Canada Inc., Hospital for Sick Children Foundation, Janssen-Ortho Inc., Purdue Pharma. Educational activities – Canadian Independent Films Institute, Nestlé Canada, Scarborough Hospital Foundation, Shire BioChem Inc., TV Ontario, Wellesley Foundation.

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Assessment And Treatment of ADHD Uncomplicated – Adults

General Preamble

ADHD in adults is now well established as a recognized disorder. Genetic studies, imaging studies, clinical treatment trials and prospective follow-up studies have all shown that for about 60% of children with ADHD, there will be continued impairment in adulthood. Nonetheless, there remains a suspicion that adults with ADHD are looking for an excuse for poor coping strategies or trying to find ways of relinquishing their responsibilities. Even among adult psychiatrists there remain concerns regarding the diagnosis and treatment of ADHD in adults. Assessment for ADHD in an adult involves interviewing or using rating scales with collateral informants, a full developmental history, familiarity with the childhood presentation, and understanding of comorbidities with other childhood disorders such as autism, learning disabilities and other disruptive behaviour disorders. Many of these skills are not part of routine adult psychiatry. In addition, adults with ADHD are often comorbid for other disorders including Axis I (e.g., anxiety, depression, substance abuse disorder) and Axis II (e.g., Cluster B personality disorders), which tend to overshadow underlying and pre-existing ADHD [1]. Furthermore, treatment of adults with stimulant medication has also been a concern to adult psychiatrists unfamiliar with these medications and aware of the potential for diversion. As a result, ADHD in adults is currently a shared interest of pediatric, adult, and family physicians. We hope this guideline will create greater comfort and skill in working with this population.

People with this condition have always lived with their symptoms, which they may or may not have insight into and which they may or may not identify as outside the norm. The most common situation for adults to seek out a referral is following diagnosis of their children or someone they know well. With the proliferation of popular texts on the subject and the media attention on the disorder on the internet, many patients now come to their doctors requesting diagnostic assessment for this disorder. The demand for services has overwhelmed existing mental health resources, and may continue to do so, as the most recent National Comorbidity Survey [2] established the prevalence of ADHD in adults as 4.4%. Given that this is a prevalent, impairing, and treatable condition, it is likely that the demand for service will continue to rise.

The CADDRA CAP-G Committee recognized that the practicing clinician needs a valid and reliable way to make a diagnosis, initiate treatment and monitor progress. The Committee reviewed the existing guidelines, the clinical literature and Canadian standards and proceeded to produce a document that is largely evidence-based [EB] but with consensus-based [CB] recommendations when necessary.

Many patients come to their doctors with a chief complaint that is not one of the symptoms in the DSM or with a symptom that is common to many disorders. ADHD in adulthood may present with a primary complaint that is an associated symptom such as procrastination, disorganization, lack of motivation, insomnia, rage attacks, and/or labile mood. In this case it is important to remember that while the clinician's focus is on assessment of ADHD as the primary disorder, the patient's focus is on the associated complaint. A complication in assessing adults with ADHD is the frequency of comorbidities and the need to conduct effective monitoring within a reasonable period of time and without extraordinary costs. The current recommendations attempt to meet this goal, but we anticipate that this is a work in progress that will undergo revision with time. This guideline will be available through the www.caddra.ca website.

CB 1. CASE IDENTIFICATION

Physicians should have a high index of suspicion of possible ADHD in patients who have a lifelong difficulty of problems with attention, disruptiveness or impulsive behaviour.

These difficulties may become apparent during routine care in patients who demonstrate typical forms of impairment. Notable flags might include:

- organizational skill problems (e.g., missed appointments, poor time management, desk that has a mountain of paper, unfinished projects, inability to comply with medication or follow instructions)
- erratic work history (e.g., change jobs frequently, fired due to lateness, forgetting appointments and/or being unprepared for meetings, difficulty delegating tasks, describing employers, employees, or clients as frustrated with them)
- anger control problems (e.g., argumentative behaviour with authority figures, overly controlling as parents, fighting with their child's teachers, 'wild-man' rage episodes)
- patients who are over-talkative, interrupt frequently or inappropriately (e.g., talking loudly on a cell phone in the waiting room, running out to re-park the car, answering the phone during an exam)
- marital problems (e.g., spouse complains he/she doesn't listen, makes impulsive remarks during arguments, forgets important events like birthdays and anniversaries, past relationship breakdowns)
- parenting problems (e.g., forgets to give child medication routinely, difficulty establishing and maintaining household routines such as bedtime and meals, difficulty getting child to school)
- money management problems (e.g., fails to do taxes, makes frequent overdrafts, runs out of money, buys things 'on a whim' they can't afford)
- substance use or abuse (especially alcohol and marijuana), excessive caffeine consumption
- addictions such as collections, compulsive shopping, sexual avoidance or addiction, overeating, compulsive exercising, gambling
- accidents
- problems with driving (e.g., speeding tickets, serious accidents, license revoked) or, to the extreme, choosing not to drive or driving too slowly in an attempt to compensate for attention problems (please use the Jerome Driving Questionnaire, available online at www.caddra.ca)

Other common presentations that should be followed by screening include:

- a parent whose child(ren) has ADHD and who note they have similar problems
- a college student who requires a diminished course load, is frustrated that it is taking a long time to get through school, or is returning to school and re-experiencing earlier problems
- an individual who was diagnosed in childhood and is still having problems
- a patient whose parent or spouse identifies them as being 'just like' information they have been exposed to on ADHD.

CB CLINICAL PEARLS

Aren't ADHD symptoms just normal human conditions of poor coping?
When the screening system is employed, one quickly realizes that the patient is not simply coping poorly but is significantly impaired with a high risk of developing secondary comorbid disorders such as anxiety and depression.

My patient is a professional. How could he/she have made it through a rigorous training program while living with ADHD?
ADHD does NOT preclude successful educational or professional attainment. It is necessary to look at the impairment relative to potential, use of coping strategies, and all aspects of functioning to determine whether ADHD is impacting on functioning. For some adults, even when they appear functional in their jobs, a closer inspection reveals that they are expending strategies that compensate for their weaknesses and these strategies may be hazardous for other reasons (e.g., workaholic, poor employee-employer relations, lack of career progression, etc.).

My patient has come to my office with a self-made diagnosis after reading about the symptoms. How can I separate out what is real from what they want to believe?
Many popular publications and TV shows about ADHD use questionnaires that may be too vague and may be applicable to many people in the population. However, that is not to say that their self-assessment is wrong but that it must be reviewed using a methodological approach that is documented in the CAP-Guidelines. Sometimes the self-diagnosis represents an underlying belief that there is a 'miracle pill' that will make lifelong problems or more serious disorders go away. Spending the time to carefully evaluate and educate is necessary to put appropriate diagnosis and treatment into perspective.

CB 2. SCREENING

✓ Current Symptom Screen
W.H.O. ADULT SELF REPORT SCALE (ASRS-V1.1, 18 item) [2,3]
If the patient screens negative on this scale they are not likely to have ADHD. If they screen positive the clinician should screen for the other major DSM-IV-TR criteria and exclude other diagnoses that may appear similar to ADHD.

✓ Developmental Screen
Did you have difficulty with these problems before you entered into puberty?
The patient must fulfill the diagnostic criterion that states the symptoms must be evident in childhood.

✓ Impairment Screen
Are these symptoms causing difficulty in your life right now?
Patients who have screened positive on the ASRS and describe the problems as long-standing and impairing should receive a full psychiatric assessment for ADHD.

CB 3. HISTORY AND PHYSICAL – EXPANSION OF CURRENT SYMPTOM SCREEN

Practice Point:

The Reluctant Patient: Some patients may not be at the assessment voluntarily. It is important that the clinician try to be as objective as they can be in the assessment, to educate the patient, and to use common sense.

The Impatient Patient: Some patients have come wanting the 'stamp of approval' from the clinician and want to get on with the medical treatment. In their minds, the history gathering is considered a waste of time since the diagnosis is confirmed either from their own reading or from a previous assessment. It is still necessary for the clinician to go through the protocol and reiterate the need to consider lifestyle changes, not just medications. It is not unusual for the previous diagnosis to have missed comorbid illnesses.

The Agenda Patient: This is the patient who has a secondary gain from the diagnosis (e.g., looking for a defense avenue in a legal suit, school accommodations, or work-related matter). The diagnosis could still be correct but it is important to flush out any secondary agenda the patient may have directly and without judgement. The patient sometimes withholds the whole truth because of the fear of being scrutinized.

See CADDRA Assessment Form #2 – Adult ADHD

Practice Point: ADHD is often associated with a particular cognitive style that is a variation of concreteness, over-inclusiveness and distractibility. This includes talking excessively, going off on tangents, getting stuck on relatively minor events, inappropriately intense affects, going on and on in response to open-ended questions, getting distracted by things in the office which interrupt their thought lines, and talking as if they are being understood without reading social cues that indicate otherwise.

See CADDRA Physical Exam and Feedback Form – Adult

The first step of the assessment is a full medical history and physical exam, the purpose of which is to:

1. Verify that the patient has ADHD based on the DSM-IV-TR criteria.
2. Exclude other medical causes of attention difficulties.
3. Recent studies have demonstrated that adults with ADHD have more than double the medical morbidity compared to the rest of the population [4, 5]. Therefore it is necessary to examine the patient for health problems caused by ADHD (e.g., poor nutrition, insomnia, accidents, poorly set fractures leading to later arthritis, untreated infections, rashes and skin picking, poor dental hygiene, sexually transmitted diseases, unsafe sex, past head injury, etc.).
4. Ensure that the patient is able to safely tolerate any medication strategy (e.g., does not have glaucoma, hypertension, arrhythmias).

Practice Point: It is important that the physical examination, if not done by the treating physician, is documented. This is important from practical, clinical and medico-legal points of view. The attending physician should still do a functional inquiry.

CB 4. CHILDHOOD HISTORY OF ADHD – EXPANSION OF DEVELOPMENT SCREEN

Adult ADHD Developmental History

One of the diagnostic criteria for ADHD in DSM-IV-TR is that onset is prior to the age of seven. An adult patient may not be able to reliably recollect whether or not he had symptoms as a young child. This DSM-IV-TR criterion has been criticized for other reasons as well [6, 7]. Adults may not have access to collateral sources that can verify their symptoms before the age of seven. The primary school curriculum is largely focused on skill development so that an individual of very high intelligence who is not disruptive may not show impairment until he/she is older. However, a good clinical history should demonstrate that the patient had evidence of similar problems throughout the lifecycle and that these were most prominent in situations that were attention demanding. ADHD is a developmental disorder which does not have an acute onset.

CB 5. IMPAIRMENT – EXPANSION OF THE IMPAIRMENT SCREEN

Weiss Functional Impairment Rating Scale Self-Report (WFIRS-S)

The clinician can obtain a sense of the areas in which the patient has functional impairment by reviewing the WFIRS-S. Items that are circled 2 or 3 can be discussed in more detail while later completing the assessment form to determine the nature of the impairment and how it relates to ADHD symptoms. After working with patients with ADHD, clinicians will see clear patterns of impairment emerging that are consistent with the diagnosis.

CB 6. HISTORY OF PAST PSYCHIATRIC HEALTH AND MEDICATIONS

While the current symptoms, the developmental history and the history of impairment are the critical findings for screening, they are not sufficient to make a diagnosis.

Past Psychiatric History. A careful history of the problem, intervention and response is needed.

- Misinformed therapists in the past may have interpreted ADHD behaviours dynamically, further complicating the problem. This is not unusual in couple therapy where a patient's undiagnosed ADHD symptoms may be misinterpreted as unconscious hostility or passive-aggressive behaviour.
- A careful past psychiatric history helps to sort out the sequence of onset of symptoms, which may be helpful in differentiating between primary and secondary disorders.
- Review of past problems permits the clinician to assess the patient's capacity for psychological mindedness and the interpretive framework they use to explain past illness. Depending on which intervention they have received, it is also possible to obtain insight into whether they are likely to respond to problem-solving approaches, interpersonal interventions, cognitive behavioural techniques, behaviour therapy or restructuring of the demands of the environment.

Medication History. Many patients are treatment naïve, but more often than not, the patient has already tried various antidepressants and other psychotropic medications. It is not unusual that the patient may have tried his/her child's medication to determine whether it will work for him/her.

Practice Point: Get the telephone number(s) of the patient's pharmacist(s) and get a printout of his/her medication history. Ask the patient to bring pill bottles in, or have the family physician that does the medical exam document the medications. In patients in whom there is any reason to suspect drug abuse or drug seeking behaviour, do a urine drug screen.

Document what medication the patient has taken, the duration of treatment, their response and any side effects, particularly ones that were unexpected or reflective of toxicity. Assess the patient's level of insight by comparing his/her report to that of the collateral informant. Assess for tolerance to medication by observing dose response over time and impact of drug holidays.

CB 7. FAMILY HISTORY

Background. Evaluation of family background provides the clinician with a sense of the person's upbringing. Families do not cause ADHD, but ADHD combined with family dysfunction is more disabling and increases impairment and risk.

Practice Point: Be sure the interview is both sensitive to the patient's culture and non-judgemental.

Family Psychiatric History. This history is significant in a disorder that is 80% heritable [8]. Ask if either a parent, a sibling, or any of their children have had a confirmed history of ADHD, problems learning, tics or Tourette's syndrome, depression, anxiety, anger problems, difficulty with the law, drug or alcohol problems, psychotic illness, personality problems, suicide or needed to take medication for emotional illness. The patient may speculate on a relative's illness and the reliability of these speculations needs to be evaluated clinically.

CB 8. SCREENING FOR COMORBID DISORDERS

The Weiss Symptom Screen and T-CAPS can be used as a means to clarify comorbid symptoms. While not diagnostic, they are helpful to the clinician to differentiate associated disorders. Additional rating scales can be used to proceed from the screener (e.g., HAM-D, HAM-A, Y-BOCS).

CB 9. FEEDBACK

Diagnosis

The patient who meets all of the criteria below has ADHD:

1. Meets symptom criteria on the DSM-IV-TR rating scales on self-report and/or collateral report, and clinician interview. Some patients lack insight and do not self-report symptoms but have clear evidence of symptoms on clinical interview. Other patients have excellent insight but their collateral informant does not know them well enough to identify a problem.
2. Has a developmental history consistent with ADHD and childhood symptoms of ADHD.
3. Shows a past and current pattern of functional impairment consistent with ADHD.
4. Has no other Axis I or Axis II disorder that can explain the symptoms.

The following should NOT be used to dismiss a diagnosis of ADHD:

1. The clinician does not observe hyperactivity in the office.
2. The patient reports a great deal of problems with organization, time management, and executive function but is reliable in keeping appointments, filling out forms and paying for treatment.
3. The patient comes in saying they have read about ADHD and think they have this problem.
4. There is no family history.
5. The spouse or parent suggests symptoms of ADHD which the patient dismisses.
6. The patient is well educated or employed in a high level position.
7. The patient is very bright, and early school report cards do not describe problems with attention or behaviour. For some, increased autonomy and challenge lead to evidence of impairment in later years. Other patients may, on further exploration, give a very convincing account of unusual coping strategies such as excess time on homework or increased need for assistance.
8. The patient was clearly hyperactive, impulsive and inattentive when younger but currently only has difficulty with a few residual symptoms. In some, impairment is clinically significant.
9. The patient does not remember or denies symptoms in childhood, and school report cards are not available. Usually a careful developmental history will reveal evidence of the impact of the disorder, even if the patient did not have insight, either at the time or presently, into the symptoms that provoked these consequences.

Some associated features may contribute to confidence in the diagnosis:

1. Typical associated symptoms such as procrastination, oppositional attitudes, difficulty with time, insomnia, reactivity, underachievement relative to potential, variable performance, temper outbursts.
2. Pattern of impairment is consistent with the sorts of impairments known to characterize the disorder such as problems with listening in class, working efficiently, paying bills, completing taxes, driving, smoking, etc.
3. Positive family psychiatric history.
4. Typical comorbidities: These patients may have poor auditory processing, poor written output, poor reading retention, abuse of substances (e.g., marijuana, cocaine, nicotine or caffeine) and mood lability. Typical comorbid problems in childhood include ear infections, enuresis, learning disabilities, ODD, Tourette's syndrome or tics.

5. The pattern of developmental challenges matches the typical course of ADHD. For example, problems with circle time as a toddler, difficulty with homework in grade three, poor choice of friends in middle school, skipping and acting out in high school, car accidents, impulsive financial decisions in adulthood, attractive to others but trouble keeping friends, self-employed in a high energy job, and being accident prone as a child and adult.

Practice Point: Document all relevant Axis I disorders specifically including the diagnostic code . It is useful to speculate on what the diagnosis would have been as a child, had you seen them, though the diagnosis may be different currently. For example, they may have been ADHD, Predominantly Combined subtype as a child but now only meet the criteria for ADHD, Predominantly Inattentive subtype. It suggests that their core hyperactivity-impulsivity may have been improved, compensated for, or changed in quality so that it is less obvious.

TREATMENT CONSIDERATIONS FOR ADHD UNCOMPLICATED – ADULTS

ADHD is not unlike other chronic developmental disorders in that treatment needs to be multi-modal and the patient will require support and follow-up over time. Ongoing education regarding strategies for coping, including but not exclusive to medication, permits the patient to obtain developmental and functional gains that would not otherwise have been possible.

A typical sequence of interventions would be:

1. **Psychoeducation.** The symptoms of ADHD relevant for this patient and the way in which they contribute to functional impairment are reviewed, with discussion of examples of how similar symptoms in the past impacted on capacity to cope with developmental challenges.
2. **Medication Trial Efficacy/Safety**. A trial of any of the first line medications is initiated with review of improvement in symptoms, management of compliance, observation for any negative psychiatric side effects such as anger or dysphoria, and serial ratings by the patient and collateral informant of improvement. Choice of medication is determined by issues such as the time of day of impairment, tolerance of adverse events (such as insomnia), risk of substance abuse, comorbid disorders, capacity for compliance, cost, urgency of response and patient's choice upon reviewing the risks and benefits of each medication option.
3. **Optimization of Treatment.** Symptom reduction will occur with medication intervention but true optimal treatment occurs when the patient's level of impairment is brought within the normal range and remission of symptoms is achieved if possible. The latter usually requires combining medication with a lifestyle approach.
4. **Behavioural Intervention and Goal Setting.** The patient's original goals are reviewed and additional treatment planning is initiated. This might include short term counseling as described above. It might include problem solving around residual deficits with executive function or activities of daily living. Improved insight into the relationship between ADHD and actual functioning often leads patients to make significant life changes to decrease their stress. For example, a student realized he was not yet ready to cope with college and decided to get a job as a mechanic (something he loved) and to take night courses for a year. A bank teller changed jobs and became a waitress and hairdresser, two positions that she could function in easily. A father realized he found watching his son's baseball games very boring, which was leading to friction between them. Since they both loved to ski he took on training his son to be a ski instructor.
5. **Organizational Technologies.** Organizational Technologies. Various hardware and software are available to diminish a patient's reliance on working memory, compensation for poor hand-writing, and improvement in time management.

These include, but are not exclusively limited to:

- Dragon Naturally Speaking® (voice-recognition software) www.ddwin.com
- Kidspiration® & Inspiration® (learning, communication & organization skills) www.inspiration.com
- Kurzweil 3000® (scanning and reading software) www.kurzweiledu.com
- Word Q® (writing software and word prediction) www.wordq.com
- EZ Keys® (alternative to Word Q®) www.words-plus.com/website/products/soft/ezkeys.htm
- Write Out Loud® (talking word processor) www.writersblocks.com

For adults who have not learned to type, any common typing program could be utilized to increase typing proficiency. Electronic PDA organizers and combination phones (Palm Pilot®, Blackberry®, etc.) are also very useful in integrating many of the organization tasks and often have the advantage that they can be synchronized with desktop hardware.

Following optimization of all avenues of treatment, most patients should receive regular follow-up by their community physician, who will adjust and maintain optimal medication effect and refer for additional treatments when needed.

ADHD COMPLEX – ADULTS

The most difficult part of an adult ADHD assessment is the differential diagnosis. Consider a second opinion or referral to a specialty ADHD centre if the patient has a clinical history that is complex or if the clinician is contemplating medication treatment beyond those recommended here [1].

ADHD AND COMORBID DISORDERS

ADHD and Learning Disorders: ADHD can occur along with specific problems reading, doing math or with written expression. These can usually be identified by history as having caused problems in school and continue to cause more or less residual difficulty. What is more complex is the differential between a primary attention problem (ADHD-Inattentive subtype) and various processing disorders, executive function problems secondary to organic conditions (e.g., head injury, exposure to toxins, drug abuse), or language deficits. Childhood history should be positive in ADHD. Is the patient inattentive only in the area in which learning deficits present a challenge? Did the problems follow an accident or follow a period of heavy drug use? Is the attention deficit limited only to the verbal or only to visual processing activities? Psychometric testing is helpful in determining whether the patient has a learning disability as well as attention problems. Accommodations are helpful in remediating learning problems in adults. Many children with ADHD have difficulty with written output, and compensate for this in later years by keyboarding. Children who had difficulty with developmental coordination disorder may find forms of exercise such as walking in adulthood that do not require extensive coordination or balance, but may continue to have difficulty with various life skills or with being clumsy.

ADHD and Anxiety Disorders: Anxiety and ADHD are often comorbid. However, there are also anxious patients in whom problems with concentrating, restlessness, and other aspects of dysregulation are caused by anxiety rather than an attention problem. Check for other signs of anxiety and family history of anxiety. Check to see if the patient has symptoms of ADHD not typical for anxiety such as stimulus seeking behaviour, disinhibition, or difficulty with organization and time

management. Determine if symptoms have arisen de novo as a result of new onset anxiety or a particular stressor. Patients with ADHD may avoid social situations because they are afraid of behaving inappropriately, without the fear of being observed that is classic to social anxiety disorder.

Patients with ADHD may have 'obsessions' where they hyperfocus on an overvalued hobby or collection, and they may be rigid, without necessarily having OCD. They may also be dependent on others, more for their help than as a function of separation anxiety. ADHD patients may have experienced significant traumas, but do not necessarily suffer inattention from PTSD unless they have the other characteristic features of this disorder. When an anxiety disorder is present along with ADHD it may require treatment in its own right with behavioural and/or medication interventions.

ADHD and Mood Disorders (Dysthymic Disorder and Major Depression): Patients who are depressed have trouble sleeping, eating, concentrating, and they may also be restless and fidgety. However, the differential with ADHD is based on two factors. In a primary depressive disorder, consistent negative mood is the most prominent feature. Poor concentration and anhedonia that follow a drop in mood is qualitatively different from the lifelong deficits in maintaining focus or motivation that are typical in ADHD. Poor concentration in the presence of depression is not associated with deficits in organization, impulsivity, and lifelong difficulty with forced effort and listening even when happy. Patients with primary attention problems often have to deal with failure and may become demoralized, depressed or dysthymic as a result, and in that case they will present with both disorders. Patients with ADHD may look like they have a mood disorder when they do not. Lack of motivation may mimic anhedonia, chronic difficulty going to sleep and restless sleep may mimic insomnia secondary to depression. ADHD patients typically have dysregulated mood, are reactive and sometimes irritable but it is not typical for ADHD in the absence of a mood disorder to be associated with entrenched, depressed affect. On the contrary, many ADHD individuals maintain reasonable mood despite chronic rejection and difficulties with relationships and life skills. Some patients with ADHD are negative or chronically irritable ('life is a bore') in the absence of major vegetative features. The most appropriate designation for the particular attribute would be dysthymia since these symptoms are not included in the diagnostic criteria for ADHD itself. Antidepressants can be helpful.

Bipolar Spectrum Disorder: In most cases of bipolar disorder in children or adolescents, ADHD is comorbid [9]. The risk for the development of bipolar disorder in children with ADHD is higher than that in the general population. Similarly, patients with bipolar disorder should be carefully screened for the possible presence of ADHD as patients with bipolar disorder in late childhood or adolescent onset are highly likely to have a diagnosis in early childhood of ADHD [10]. A patient with ADHD who is currently depressed may be perceived as bipolar by contrast with his or her description of his usual state of high energy. Any patient who experiences a new and acute onset of increased energy, irritability, grandiosity, and decreased need to sleep is, by definition, suffering a hypomanic/manic episode since ADHD is developmental and chronic. Some patients have an early onset form of bipolar disorder characterized by severe mood swings, anger outbursts, irritability, distractibility, hyperactivity and impulsive self-destructive behaviour. This complex differential should be referred to an expert as these patients are difficult to help and carry high risk, and research on how best to intervene is limited.

ADHD and Substance Abuse Disorder: Patients with ADHD have a two-fold risk for substance abuse and dependence including daily marijuana use, alcoholism, smoking, and other drugs [11]. On the other hand, it is also true that patients with these substance abuse/dependence problems present with problems with attention, behaviour and self-control that mimic ADHD. For this reason, we do not recommend making a diagnosis of ADHD in the face of current substance abuse or dependence, even when childhood history is positive. The primary diagnosis in this circumstance is the substance problem and diagnosis of ADHD should be deferred until the patient is in recovery. Treatment of ADHD in the presence of patients who use marijuana without dependence or abuse is controversial and the risks and benefits of doing this have not been studied. Those who do treat ADHD in adults who smoke marijuana note that this is extremely common in this population, that no treatment carries risk in itself, and that this may minimize self-medication for the disorder. Those who do not treat ADHD in adults in this circumstance note that it is difficult to assess attention and motivation in someone who has been using marijuana on a regular basis for many years, that drug interactions are unknown, that marijuana may be laced with substances that are more dangerous, and that it makes little sense to use a medication to help a patient focus when they are self-medicating with a substance that impairs attention skills in the long haul.

ADHD and Borderline Personality Disorder (BPD): BPD may occur in either gender. While patients with BPD are often impulsive, labile, and have difficulties with executive function, characteristics which differentiate the two disorders include the presence of rage, emptiness, planned manipulative behaviours, primitive defense mechanisms, deliberate self-destructive actions, abandonment anxiety, and suicide attempts. While patients with BPD may have ADHD, the BPD is the more severe disorder and more likely to impact outcome. Treatment of ADHD in the context of BPD, especially with short-acting stimulants, should be undertaken with caution. Patients with BPD who have clear evidence of ADHD in childhood often expect that treatment of the ADHD in adulthood will resolve the personality issues, and in that circumstance it is important to explain the limitations of treatment of ADHD so that they do not react with rejection sensitivity, feelings of abandonment, rage, or disappointment and devaluation.

ADHD and Antisocial Personality Disorder (ASPD): Some children with ADHD and CD go on to have ASPD after the age of 18, particularly when they show an absence of remorse, compassion and conscience. Since some ASPD patients may be psychopathic and also drug seeking, it is important to screen for cruelty, aggression, problems with the law, and stealing. Treatment of ADHD in the context of ASPD may not lead to significant functional improvement in the patient's actual well-being but may improve the extent of their impulsivity. Whether or not they are less impulsive, less hyperactive and more focused may or may not improve their functioning if symptomatic improvement is directed to antisocial activities rather than improved interpersonal relationships and life skills.

References

1. Weiss, M., et al., *ADHD in Adulthood: A guide to current theory, diagnosis, and treatment.* 1999, Baltimore and London: Johns Hopkins University Press.
2. Kessler, R.C., et al., Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Arch Gen Psychiatry*, 2005. 62(6): p. 593-602.
3. Kessler, R.C., et al., The prevalence and effects of adult attention deficit/hyperactivity disorder on work performance in a nationally representative sample of workers. *J Occup Environ Med*, 2005. 47(6): p. 565-72.
4. Birnbaum, H.G., et al., Costs of attention deficit-hyperactivity disorder (ADHD) in the US: excess costs of persons with ADHD and their family members in 2000. *Curr Med Res Opin*, 2005. 21(2): p. 195-206.
5. Swensen, A., et al., Incidence and costs of accidents among attention-deficit/hyperactivity disorder patients. *J Adolesc Health*, 2004. 35(4): p. 346 e1-9.
6. Barkley, R.A. and J. Biederman, Toward a broader definition of the age-of-onset criterion for attention-deficit hyperactivity disorder. *J Am Acad Child Adolesc Psychiatry*, 1997. 36(9): p. 1204-10.
7. Applegate, B., et al., Validity of the age-of-onset criterion for ADHD: a report from the DSM-IV field trials. *J Am Acad Child Adolesc Psychiatry*, 1997. 36(9): p. 1211-21.
8. Faraone, S.V. and S.A. Khan, Candidate gene studies of attention-deficit/hyperactivity disorder. *J Clin Psychiatry*, 2006. 67 Suppl 8: p. 13-20.
9. Wozniak, J., Recognizing and managing bipolar disorder in children. J Clin Psychiatry, 2005. 66 Suppl 1: p. 18-23.
10. Giedd, J.N., Bipolar disorder and attention-deficit/hyperactivity disorder in children and adolescents. *J Clin Psychiatry*, 2000. 61 Suppl 9: p. 31-4.
11. Wilens, T.E., et al., Characteristics of adults with attention deficit hyperactivity disorder plus substance use disorder: the role of psychiatric comorbidity. *Am J Addict*, 2005. 14(4): p. 319-27.