
ADHD IN ADULTS

Dr. Jonathan Haverkamp, M.D.

Attention-Deficit Hyperactivity Disorder (ADHD) has become a very common diagnosis, affecting children, adolescents and adults. A better understanding of this condition increases the success rates in treating it and improving patients' quality of life. This article gives a brief overview of psychotherapeutic approaches, including communication-focused therapy as developed by the author, and medication.

Keywords: attention deficit hyperactivity disorder, ADHD, diagnosis, treatment, psychotherapy, psychiatry

Contents

Introduction.....	4
From Childhood to Adulthood	4
Psychotherapy.....	4
Medication	5
Symptoms.....	5
Differential Diagnosis	5
Neurobiology.....	6
Principal Structures	6
Anterior Cingulate Cortex.....	7
The Cerebellum	7
Treatment.....	8
Psychotherapy.....	8
Mindfulness.....	8
Controlling the Chaos.....	9
Communication-Focused Therapy (CFT)	9
Communication Patterns.....	9
Understanding Communication	10
Communication Patterns.....	10
Focus	10
Attention Deficit Hyperactivity Disorder (ADHD).....	11
Cutting Through Complexity	12
Communication-Focused Therapy (CFT)	12
Reconnection.....	13
Understanding ADHD	13
Motivation.....	14
Meaning.....	14
Experiencing the World.....	14
Communication Patterns.....	15
Values, Needs and Aspirations	16
Meaningful Messages as the Instrument of Change.....	16

Better Communication Patterns	16
Towards Interests and Values	17
Individual Success.....	17
Psychoeducation	17
Cognitive Behavioral Therapy (CBT).....	17
Medication	18
Methylphenidate.....	18
Dexamphetamine	19
Lisdexamphetamine	19
Atomoxetine.....	19
Bupropion and other Antidepressants.....	20
Diet and Supplements	20
Diet	20
Supplements.....	20
Self-Help	21
References.....	22

Introduction

ADHD in adults is a childhood-onset, persistent, neurobiological disorder associated with high levels of morbidity and dysfunction estimated to afflict up to 5% of adults worldwide (American Psychiatric Association [APA], 1994; Kessler et al., 2006).

Adult attention-deficit/hyperactivity disorder (ADHD) is a mental health disorder that includes a combination of persistent problems, such as difficulty paying attention, hyperactivity and impulsive behavior. Adult ADHD can lead to unstable relationships, poor work or school performance, low self-esteem, and other problems.

From Childhood to Adulthood

Symptoms start in early childhood and continue into adulthood. In some cases, ADHD is not recognized or diagnosed until the person is an adult. Adult ADHD symptoms may not be as clear as ADHD symptoms in children. In adults, hyperactivity may decrease, but struggles with impulsiveness, restlessness and difficulty paying attention may continue.

Treatment for adult ADHD is similar to treatment for childhood ADHD, though some ADHD medications approved for children are not approved for adult use. Adult ADHD treatment includes medications, psychological counseling (psychotherapy) and treatment for any mental health conditions that occur along with ADHD.

Psychotherapy

There are several ‘flavors’ of psychotherapy, but they all derive from the concept of the ‘talking cure’ developed by Freud and Breuer. Over time, various brands have been developed, but the interaction between the patient and therapist, insight, reflection and learning are still the basic building blocks of psychotherapy or counselling.¹

Communication plays an important role in the treatment process, which is also the case in ADHD. It is known that such parameters as motivation and enjoyment of a task can make a significant difference.

¹ Both term, psychotherapy and counselling, are often used interchangeably. In academia and research ‘psychotherapy’ has been used traditionally more frequently. Many patients, however, find the term ‘counselling’ less stigmatizing and ‘pathological’. I will use the term psychotherapy as a matter of habit and convenience.

Medication

The medication of ADHD is usually quite straight forwards. Various kinds of stimulants or drugs with a similar effect are used to treat the symptoms of reduced concentration, scattered focus, and so forth. For many people they help quite well.

Symptoms

Some people with ADHD have fewer symptoms as they age, but some adults continue to have major symptoms that interfere with daily functioning. In adults, the main features of ADHD may include difficulty paying attention, impulsiveness and restlessness. Symptoms can range from mild to severe.

Many adults with ADHD are not aware they have it — they just know that everyday tasks can be a challenge. Adults with ADHD may find it difficult to focus and prioritize, leading to missed deadlines and forgotten meetings or social plans. The inability to control impulses can range from impatience waiting in line or driving in traffic to mood swings and outbursts of anger.

Adult ADHD symptoms may include:

- Impulsiveness
- Disorganization and problems prioritizing
- Poor time management skills
- Problems focusing on a task
- Trouble multitasking
- Excessive activity or restlessness
- Poor planning
- Low frustration tolerance
- Frequent mood swings
- Problems following through and completing tasks
- Hot temper
- Trouble coping with stress

Differential Diagnosis

Patients with ADHD and borderline personality disorder (BPD) both often present deficits in affect regulation, impulse control, substance abuse, low self esteem and disturbed interpersonal relationships. In ADHD attention deficit is most pronounced in situations which lack external stimulation. In contrast, patients with borderline personality disorder often experience dissociative symptoms when they feel emotionally stressed

Affect regulation, however, differs quite dramatically in the two conditions, when the patient is under internal stress. Patients with ADHD often try to regulate their labile emotional balance by excessive sports, excessive work, sexual behavior, and not seldomly impulsive aggressive behavior. Patients with borderline personality disorder, on the other hand, tend to experience dissociative states, when they are emotionally stressed, to the extent where they essentially freeze. The latter may also be related to experiences of traumatization which many patients with borderline personality disorder have in their past.

Neurobiology

Convergent data from neuroimaging, neuropsychological, and neurochemical studies have implicated abnormalities in neural systems dedicated to attention and executive function (EF) in these patients. Much of the neuroimaging literature on ADHD derives from studies that included participants treated with psychostimulants and other medications (Seidman et al., 2011). It is commonly understood that ADHD is associated with cortical and functional alterations in brain regions that are critical for the regulation of EF across the life cycle.

Neurophysiologically, dissociation in borderline personality disorder has been regarded as a special form of attention deficit. However, this does not necessarily mean that there is a particular link between the two conditions.

Principal Structures

Within a neural systems formulation of ADHD, the set of gray structures hypothesized to be principally involved are the dorsolateral prefrontal cortex (DLPFC), ACC, orbitofrontal cortex (OFC), lateral parietotemporal cortex (IPL/TOP), and caudate nucleus and cerebellum (CBL) (Makris et al., 2009; Seidman et al., 2011; Seidman et al., 2005; Valera, Faraone, Murray, & Seidman, 2007). The caudate nucleus and the dorsal ACC are believed to be key structural components of the anatomical neural systems supporting EF, attention, impulsivity, and emotional regulation.

A small number of pediatric studies using treatment-naïve populations showed an association of ADHD with brain alterations in the anterior cingulate cortex (ACC), cerebellar vermis and white matter (Bledsoe, Semrud-Clikeman, & Pliszka, 2009; Castellanos et al., 2002; Pliszka et al., 2006). For example, Bledsoe et al. (2009) showed reduced area in the posterior inferior cerebellar vermis in treatment-naïve ADHD children compared with treated and not treated controls. One study of adults reported brain dopamine transporter levels in drug-naïve adults with ADHD; however, brain structure was not reported (Volkow et al., 2007)

The DLPFC, ACC, and OFC are also important regulators of other cortical and subcortical brain regions as well, and their deficiencies appear to be consistent with the symptoms encountered in ADHD (cf. review article, Seidman et al., 2005). The mesh of connections between these

frontal cortical centers qualifies them as critical networking nodes for the interface of drive, emotion, cognition, and motor function as well as for the modulation of cognitive control (Bush et al., 2000).

Functionally, convergent evidence from functional magnetic resonance imaging (fMRI; Bush et al., 2000) and evoked potential experimentation in humans suggest that DLPFC and ACC are associated with monitoring of conflict and modulation of cognitive control as well as modulation of allocation of attention in real time. Interactions between the DLPFC, OFC, IPL, amygdala, and brainstem centers such as the locus coeruleus or the ventral tegmental area, enable the ACC to integrate sensitive information in real time to monitor conflict associated with competitive cognitive tasks and, in concert with the DLPFC, to modulate cognitive control and produce balanced behavior (Bush et al., 2000). Furthermore, lateral OFC connections with lateral prefrontal and dorsal ACC (BA 24, 32) neurons are relevant in translating motivational information into action. Moreover, a pattern of deficits involving all of these frontal structures may cause a breakdown in monitoring of conflict as well as inefficient modulation of cognitive control and allocation of attention, which may result in the impulsivity, hyperactivity, and inattention characteristic of ADHD.

Anterior Cingulate Cortex

Abnormalities in the ACC in medication-naïve adults with ADHD have been shown (Makris et al., 2010). While limited, these magnetic resonance imaging (MRI) findings to date are consistent with current models in ADHD clinical research, and with basic neuroscience supporting the relevance of these brain structures to the phenomenology of ADHD symptoms and cognitive control (Bush, Luu, & Posner, 2000; Makris, Biederman, Monuteaux, & Seidman, 2009; Seidman, Valera, & Makris, 2005; Sonuga-Barke, 2003).

Medication-naïve participants affected by ADHD reach adult life with structural brain alterations. The ACC, caudate nucleus, and CBL have been shown to be volumetrically reduced in medication-naïve children with ADHD (Bledsoe et al., 2009; Semrud-Clikeman, Pliszka, Lancaster, & Liotti, 2006)

The Cerebellum

Although structural alterations in the cortical networks involved in EF, attention, and impulse control have been considered to be central to the symptoms of ADHD, the cerebellum may be another crucial structure accounting for ADHD's phenomenology (Seidman et al., 2005; Valera et al., 2007; Valera et al., 2010). The cerebellum is massively interconnected with the frontal, parietal, temporal, and occipital cerebral cortex (Strick et al., 2009) exerting an influence over nonmotor regions of the cerebrum and, therefore, plays an important role in human cognitive and emotional functions (Strick et al., 2009). Structures in the cerebellum are known to be key components of the neural systems responsible for attention, executive control and emotional regulation (Makris et al., 2009). There appears to be persistence of cerebral abnormalities into

adulthood. An absence of resolution of an abnormal morphometric phenotype present earlier in childhood and adolescence has been shown in pediatric MRI studies (Castellanos et al., 2002). It is of interest that reductions in cerebellar volumes in previous work with children were shown to be present in ADHD children even after controlling for whole-brain volumes that had been significantly different (Castellanos et al., 2001).

The notion of cerebellar involvement in ADHD has been proposed since the 1990s (Levinson, 1990) and since then volumetric changes have been documented in medicated children and adolescents (Berquin et al., 1998; Castellanos et al., 2001; Castellanos et al., 2002; Mostofsky, Reiss, Lockhart, & Denckla, 1998) as well as adults with ADHD, and in medication-naïve children with ADHD (Bledsoe et al., 2009).

Treatment

Treatment should usually combine medication with psychotherapy. Medication is definitely not the only option, but in more severe cases it can help a patient to have a relatively normal life again and raise the quality of life significantly.

Psychotherapy

There are various flavors of psychotherapy to choose from, and it is important to match the most promising therapy with the right patient. Psychotherapy should at least help with the following:

- Improvement in time management and organizational skills
- Learning to reduce impulsive behavior
- Developing better problem-solving skills
- Coping with past academic, work or social failures
- Improving one's self-esteem
- Learning ways to improve relationships with family, co-workers and friends
- Lowering the sensitivity to mood swings

Mindfulness

Attention deficit is one of the two primary deficits in ADHD, and training in mindfulness can be helpful. This includes becoming more aware of details in life and focusing on them more effectively. There are various training manuals for individual and group work. Some patients may also find self-help books and mobile phone apps helpful. Mindfulness has cognitive and behavioral aspects, which can both be practiced. The concept of mindfulness is derived from Zen Buddhist meditation practices and concepts.

In dialectic-behavioral therapy (DBT) there are three “what” skills (observing, describing, participating) and three “how” skills (taking a nonjudgmental stance, focusing on one thing at a time, being effective) (Linehan, 1993). Situations in which the patient could not practice mindfulness are analyzed with a view to help the patient at being more mindful in daily life.

Controlling the Chaos

There are several approaches to help a patient structure and organize his or her day better. Hallowell and Ratey (1994) have developed concrete and practical advice in this regard, from organizing the day to organizing help, and more.

Communication-Focused Therapy (CFT)

Communication plays an important role in ADHD. As already noted above, if a patient sees enjoyment and meaning in a task, concentration and focus can be practically normal. Most of the information about what is meaningful and relevant comes through communication with oneself and others. Communication-Focused Therapy (CFT) has been described by the author to address this in ADHD (Haverkamp, 2017) and several other mental health conditions. On important benefit is that a better sense of oneself can also increase one’s interactions with others, and so have a positive effect through improved social skills and a better and more supportive environment.

The techniques used in communication-focused therapy has been discussed in other publications. (Haverkamp, 2018b, 2018a)

Communication Patterns

ADHD has a lot to do with how one interacts with the environment. Strategies, which maybe worked for a while, are not as helpful anymore. In therapy, in the interaction between therapist and patient new communication patterns can be developed. Patients suffering from ADHD have often developed maladaptive interaction strategies with their environment, which contribute to the life impairment brought about by the ADHD symptoms. One strategy developed in childhood may simply be avoidance, as one has learned that committing to an interaction or an activity has been unsatisfying due to the inability to stay focused. Rather than trying to make interactions and activities more interesting and meaningful to oneself, the patient learns to withdraw. To reverse this, it is important to help patients see meaning in activities and interactions again by helping them connect with themselves in better ways.

Communication patterns used in an interaction with oneself and in interactions with others are interrelated. Both entail observing and decoding flows of information, identifying relevant and meaningful pieces, and interpreting them, and then responding by encoding and sending out information. Looking at these processes in therapy can be very helpful in making

communication again a tool that benefits the patient rather than interfering with his or her life.

The ability to observe the flows of information and the reactions they cause, both internally and externally, is also an important skill to build and shape in therapy. It helps the patient to develop strategies to interact with oneself and others over a life-time. In ADHD, this can help a patient find motivation for relevant activities more easily and focus more easily what is truly important to the individual.

Understanding Communication

Understanding how communication works can be very helpful to a patient suffering from ADHD. This means not just explaining how messages and meaning are sent and received, but also to allow the patient to experiment in the therapeutic setting. This should be the space where the patient feels safe and supported enough to engage in experimenting with communication which in the long-run is effective in dealing with the ADHD itself as well as the secondary communication and relationship effects. The more a patient understands how meaning and relationships are created and maintained in relevant and effective communication, the more of a sense of control he or she will have. For a child it may also be helpful to demonstrate and experiment with the explanation in a playful way. This also helps strengthen the therapeutic relationship and motivate towards therapy.

Communication Patterns

Communication patterns are different from communication scripts. They describe how a person uses information in specific situations or quite generally. For example, external general communication patterns may be not to ask questions, not to communicate dislike (saying 'No') or to prevent feeling sadness (blocking the signal 'I am sad') external specific communication patterns may include not talking about one's anger with one's parents or sexual issues with a partner internal general communication patterns may include to think about all different angles before deciding on anything internal specific communication patterns may include not to allow feelings of sadness to reach consciousness.

There is little difference in the communication flows that are conscious or unconscious, except that some are being made conscious. This plays a special role in ADHD where it is more difficult for information (and the emotions associated with it) to hold the focus. However, if one sees the communication processes within and outside the focus as being subject to the same rules and mechanisms, one can increase the emotional value or focus pull attached to some information to hold the focus firmer on the information flow connected with an activity or a thought process.

Focus

Focusing on things that are relevant and meaningful to oneself motivate, benefit oneself and make happy. Unfortunately, many people in their work, at school or in social interactions feel a need to focus on things that on deeper reflection are neither very relevant nor meaningful to themselves. Often, people have little insight into what is relevant or meaningful to them,

which can lead to less satisfaction in an activity, which also leads to less focus and concentration. Hyperactivity can then often be a result of it as well. Of course, life does not only consist of enjoyable activities, but the search itself to find more meaningful activities in itself can feel relevant if one understands that one is engaged in this process.

Children and adults with ADHD often do not have the opportunity to do things they enjoy, and feel are relevant to them, which usually makes the symptoms and their underperformance and lack of focus worse. In those cases, where this is possible, individuals can be high achievers. For example, in the case of one IT specialist with classic ADHD symptoms in many areas outside his IT area, he was tremendously successful and happy in his job, because he was able to do the job he loved. The positive experiences from his job also translated into a happy family life despite a clear ADHD diagnosis. This sounds like an exception, but it is quite obvious how schools, colleges and society as a whole could help individuals suffering from ADHD by supporting them in making things more meaningful and helping them to find out what is meaningful to them. Especially in the case of ADHD, once size fits all does not apply.

This does not mean one just has to give children total freedom to 'find themselves', but it is important to support them to find what is important to them by fostering better communication with themselves and with others. The same also applies to adults with ADHD, who have often developed maladaptive communication patterns with themselves and others, which solidify and entrench the ADHD. By helping children and adults acquire better communication patterns with themselves and others, they can find more relevance and meaning in activities. For example, often there is a lack of information to make the link between an activity or a relationship, for example, and the basic values, needs and aspirations the individual holds. The ADHD can make it more difficult to select and find this information. It can thus increase motivation, focus and concentration by working with a patient on finding more relevant information through reflection with oneself and communicating with others. Communication itself should become more interesting to the patient and be seen as an important tool in overcoming the limitations imposed by the ADHD.

Attention Deficit Hyperactivity Disorder (ADHD)

Attention deficit hyperactivity disorder (ADHD) is a mental disorder of the neurodevelopmental type. It is characterized by problems paying attention, excessive activity, or difficulty controlling behavior which is not appropriate for a person's age. The symptoms appear before a person is twelve years old, are present for more than six months, and cause problems in at least two settings (such as school, home, or recreational activities). In children, problems paying attention may result in poor school performance. Although it causes impairment, particularly in modern society, many children with ADHD have a good attention span for tasks they find interesting. Its causes are unknown.

It is thus not a condition which interferes with the ability to focus and concentrate globally, but one that makes it important to help patients see enjoyment and meaning in everyday tasks. If something feels relevant, patients with ADHD often have less of a problem with it. The important task is to help the patient in seeing the connections between activities and their basic parameters, their needs, values and aspirations. While medication is often needed in more severe cases of ADHD, it can lower the 'pressure' to select more relevant and meaningful

activities. This in turn can dampen changes which may help a patient with ADHD to be engaged in more meaningful and relevant activities in more interesting settings. Even when it comes to reading a book, patients with ADHD have far less difficulties with one that captivates them. Regarding adult ADHD, it is obvious in clinical practice that many patients are stuck in jobs they can only identify with partially but are afraid to leave, in part at least due to the greater feelings of uncertainty and instability brought on by the ADHD. In these cases, efforts are better invested into making the job more meaningful or finding ways to change it rather than coping skills. The former relies heavily on internal and external communication processes, which should be a chief focus in therapy.

Cutting Through Complexity

An individual suffering from ADHD sees a lot of fragments in the world as the mind wanders from one place to the next. This can lead to a feeling of being overwhelmed as the seemingly unresolved complexity of the world, the relationships with others and the own person increases. Observing how the patient takes in information and how he or she

Helping the patient see connections helps to see relevance to themselves and the meaningfulness of a task. One way to get there is to make complex relationships between tasks and own interests and aspirations easier to see. Schoolwork as an end in itself may not be very motivating, not just to people suffering from ADHD, but if a subject matter can be tightly linked to a unique interest focus and concentration can often be restored. For someone with ADHD it is not enough to do things because one does them. There has to be heartfelt reason for it. People without ADHD have the reward of some reward in the future, for individuals with ADHD the reward needs to be closer at hand. The therapeutic relationship, supported by the flow of meaningful messages, should convey to the patient that tools to get what they need and want are available. Together with others, things can become possible.

Communication-Focused Therapy (CFT)

Communication-Focused Therapy (CFT) was developed by the author to focus more specifically on the communication process between patient and therapist. The central piece is that the sending and receiving of meaningful messages is at the heart of any change process. CBT, psychodynamic psychotherapy and IPT help because they define a format in which communication processes take place that can bring about change. However, they do not work directly with the communication processes. CFT attempts to do so.

We engage constantly in communication. The cells in our bodies do so with each other using electrical current, molecules, vibrations or even electromagnetic waves. People communicate with each other also through a multitude of channels, which may on several technologies and intermediaries. It does not have to be an email. Spoken communication requires multiple signal translations from electrical and chemical transmission in the nervous system to mechanical transmission as the muscles and the air stream determine the motions of the vocal chords and then as sound waves travelling through the air, followed by various translations on the receiving end. At each end, in the sender and in the receiver, there is also a processing of information which relies on the highly complex networks of the nervous system. Communication, in short, happens everywhere all the time. It is an integral part of life. Certain

communication patterns can, however, also contribute to experiencing anxiety and panic attacks.

Autoregulation

Communication is an autoregulatory mechanism. It ensures that living organisms, including people, can adapt to their environment and live a life according to their interests, desires, values, and aspirations. This does not only require communicating with a salesperson, writing an exam paper or watching a movie, but also finding out more about oneself, psychologically and physically. Whether measuring one's strength at the gym or engaging in self-talk, this self-exploration requires flows of relevant and meaningful information. Communication allows us to have a sense of self and a grasp of who we are and what we need and want in the world, but it has to be learned similar to our communication with other people.

Giving patients with ADHD a greater sense of being in control of their own destiny and interacting with others and shaping the world in a way which gets their needs and wants met. Even though young patients with ADHD seem demanding and in control of things in a wild way, at the core they are very conscious of not being in control over events in life. There is the constant sense of not getting what one needs and wants, especially in older patients, which leads to misdiagnoses of personality disorders, particularly narcissism or dissocial personality disorder. It is important to see the ADHD with its maladaptive communication patterns with oneself and others at the core.

Reconnection

In ADHD there is often a strong sense of disconnect, which also causes a loss of insight into what is meaningful and relevant to the own person. This, however, makes it more difficult to find the activities and relationships that one can more easily focus on and engage with. Reconnection on an emotional level means reflecting on activities and interactions in the past which generated positive feelings, reconnecting on a cognitive level means reflecting on one's thought patterns and content, often with the help of a therapist.

The therapeutic setting has the advantage that the focus is on this reconnecting work and there is little distraction from other people and everyday life demands. The work of the therapist is to support the patient in this journey of reflecting on interaction patterns and reconnecting with self and the world.

Understanding ADHD

Someone suffering from ADHD can focus quite well on things that are motivating. However, for things that are not motivating it can be far more difficult to focus and concentrate on. Thus motivation, or seeing relevance and potential excitement and satisfaction, in things is probably more relevant to someone suffering from ADHD.

Many therapeutic approaches target the focus or concentration rather than motivation. However, changing motivation and making things more meaningful may be a better long-term

strategy. This can develop if changes in perspective lead to the perception of more meaning in oneself and in the world around, in behaviors and thoughts.

Disconnection

There is a vicious cycle in which the symptoms of ADHD cause a disconnectedness from oneself and others. This not only leads to feelings of loneliness, but also to a loss of a sense of effectiveness in the world, the ability to effect changes and to get one's needs, wants and aspirations met. The disconnect is often a result of the perceived failure in carrying out tasks which seem effortless to others, like schoolwork or otherwise simple repetitive tasks. Later in life, they can lead to resignation on the job and resentment towards others. Of course, at the core is anger, hopelessness and helplessness about oneself. The antidote to this is the reconnection already mentioned above.

Motivation

Motivation is a key parameter in ADHD because if one is genuinely motivated about an activity, the ADHD symptoms often vanish, particularly the difficulties in focus and the tendency of the mind to wander. Using better communication with oneself and others to build motivation is usually the best way to achieve a more permanent effect. The patient should develop the skillset to be able to motivate myself or herself to choose and do the things in life which are relevant to himself or herself.

Meaning

In therapy an important part is to rediscover meaning, and find it in the things that are relevant to the patient. Relevant is anything that is close to his or her values, basic interests, aspirations, wants, wishes and desires.

Seeing communications as meaningful requires perceiving a relevance to oneself in them, as well as a message that can bring about some change. In many situations it may be that it is difficult to spot meaningfulness in something before it has been tried out, but people often engage in it anyhow if they believe that it holds the potential to be meaningful. Much in the world would never have been accomplished without this course of action. To people suffering from ADHD, such a way of doing things seems to be closed off. The emotionally felt relevance and meaningfulness has to be there right away. So, an important question becomes how to bridge this gap in time. CFT aspires to do just this by working with meaningful messages in the exchange between therapist and patient.

Experiencing the World

Communication helps in identifying and finding meaning, either communication with oneself or with others. The exchange of messages is like a learning process in which meaning can be identified, found and accumulated. Through meaningful interactions one accumulates more meaning, more connectedness with oneself and the world and reduces the need for thoughts

and behaviors which are triggered by fears, guilt, self-blame and other negative emotions. This also helps against depression and anxiety.

Perceiving more meaning also makes interacting with others and oneself more meaningful. This has a positive effect on one's interaction patterns, how and in which one ways one relates to one's environment and exchanges messages with it. The fact that meaning can be created in an interaction, or any instance of communication, can be liberating from someone with ADHD because it means one does not have to wait for meaning. It is already there, if one just engages in it.

'Experiencing' should be taken quite literally. It means interacting and engaging with the human- and non-human worlds. Since meaning comes out of these interactions, it cannot be understated how helpful and effective it is to support a patient in potentially meaningful interactions with the environment. The interaction with oneself is the flip side of the interactions with the environment. A person suffering from ADHD usually needs to learn communication patterns that make it easier to engage with the internal and external worlds. Fears an anxiety may even become greater for a short time in the beginning before they fall off. It may be helpful to follow treatment suggestions for anxiety to support the patient in overcoming these fears and anxieties.

Communication Patterns

The patterns in which people communicate determine the benefits the communication process. If the interaction patterns are not helpful in understanding messages or in reacting to the messages from others, they are maladaptive. Unfortunately, since communication is the mechanism which drives autoregulatory processes, these maladaptive communication patterns may not necessarily result in more adaptive ones, even if there is the pressure to change. In not so few cases, this pressure may even result in a deteriorating vicious cycle if the maladaptive communication patterns need to be relied on by autoregulatory processes. For example, if a patient suffering from ADHD feels he or she needs to socialize more and make small talk in informal gathering, it can lead into a vicious cycle if the negative self-talk is not resolved at the same time. Otherwise, anxiety will lead to more self-consciousness, more anxiety, less ability to interact as one would want to, even more negative thoughts, even ore anxiety, and so on. To break this cycle it is thus important to go through four stages of addressing maladaptive communication patterns:

- Observation
- Awareness
- Experimentation
- Insight

Those stages can also be worked on in parallel, although the focus on specific topics should be slightly different then. It is finally insight, and awareness in the beginning, which brings about lasting change. Once information has been committed to memory, it usually stays there. A trained behavioral or even cognitive pattern can be unlearned, while a learned communication pattern is essentially stored indefinitely and will be used if it is advantageous to do so.

A change in communication patterns can happen in any meaningful interaction, including a therapeutic setting, which provides more skilled feedback and a fertile ground for experimenting with new communication patterns. The patient not only becomes aware of his or her own communication patterns, but also experiences how using modifications to these patterns can feel differently and lead to different responses from others.

In ADHD, the communication space of a therapeutic setting can help the patient to find more confidence and experience more authorship in affecting the dynamic, as well as develop insight into oneself and how to see more meaning in the world. The interaction with another human being can bring about the discovery of more meaning in the world. That is a basic axiom of communication theory, and shows again and again in the practice of psychotherapy.

Values, Needs and Aspirations

Often, individuals suffering from ADHD have become uncertain about what is genuinely important to them and the fit between these values and interests and their current life situation. Whether in the professional or romantic realms, getting having one's needs, values and aspirations met, makes happy in the long run. This also applies to obviously altruistic situations. If I value helping people, it is important that I do that to make me happy.

Some people need to spend more time by themselves, while others thrive in social settings. In the end, a mix appropriate to the individual leads to the greatest motivation and positive feelings. This applies to many personality and character attributes as well. Some can slowly change over time, but many, such as a person's core values, change little, if at all. Particularly for an individual with ADHD, it helps to have a good grasp of what they are, because pursuing them can lead to a much better focus and greater satisfaction and success. For everyone, but particularly for those with ADHD, a major task in life is to steer one's life in the direction of one's basic interests, values and aspirations.

To discover what is meaningful it is helpful to spend some effort on identifying values, needs and aspirations. This process can be very helpful to adults but may be more difficult in children and adolescents who are still developing and understanding of these parameters. Helpful here could be engaging in play or other activities where they can be identified. In adults this can be accomplished within a normal psychotherapy setting.

Meaningful Messages as the Instrument of Change

Communication is the vehicle of change. The instruments are meaningful messages which are generated and received by the people who take part in these interactions. In a therapeutic setting, keeping the mutual flow of information relevant and meaningful brings change in both people who take part in this process. The learning curve for the patient may be steeper in certain respects because he or she spends less time in this interaction style than a therapist.

Better Communication Patterns

For patients with ADHD, communication patterns have often developed as short time strategies at first, and where then kept for the perceived lack of better choices. Often, they

become quite maladaptive over time, partly because of social isolation or conflict due to worsened ADHD symptoms, which can make them even less suited to benefit the patient. As described above, to get out of this vicious cycle awareness and insight into present patterns and the development of new patterns is key.

Towards Interests and Values

Behaviors and activities will only increase satisfaction in the long run if they take into account the basic interests, values and aspirations of the individual. This requires identifying them first, as described above, and then finding ways to implement them more into the person's life. Fears and conflicts may need to be addressed, which are often associated with more substantial changes in a person's life. However, to find these basic parameters requires connecting with oneself to be able to retrieve this information, which requires overcoming any fears or anxiety that may prevent this. The therapeutic setting should offer the space where this is possible.

Individual Success

Succeeding in life is both an individual and communal accomplishment. Communication with oneself and others is the important link and mechanism in attaining it. Especially for someone suffering from ADHD, failures at school or on the job often lead to less self-confidence and secondary psychiatric symptoms. To turn this around, it is important for the person suffering from ADHD to develop the communication skills and insight to reconnect with oneself and the world around. More specific techniques for communication-focused therapy are described elsewhere (Haverkamp, 2010, 2017).

Psychoeducation

Psychoeducation patients on their condition and how they can adapt better to daily living and arrange their life in ways that works for them. Enough time should be set aside for this, because it can lower the anxiety, uncertainty, depressed thought or hopelessness which can make the ADHD worse.

Cognitive Behavioral Therapy (CBT)

Learning new behaviors and perspectives can bring about useful changes. CBT also works with reinforcing helpful behaviors and trying to extinguish unhelpful ones. Since there is an interaction between thoughts, behavior and emotions, changing one or two of them can change the third one. The objective is to feel better about oneself and the world and reach a higher quality of life. CBT is done individually or in groups.

Medication

Medication is not a permanent cure for ADHD, but may help someone with the condition concentrate better, be less impulsive, feel calmer, and learn and practice new skills. Usually, the medication is taken as long as it helps. Sometimes, if it stops working, it is possible to try a drug holiday to increase the effectiveness again.

Generally, there are five types of medication licensed for the treatment of ADHD:

- methylphenidate
- dexamphetamine
- lisdexamphetamine
- atomoxetine
- bupropion and other antidepressants

In a number of countries, most or all of these medications are licensed for use in children and teenagers. Atomoxetine is quite often also licensed for use in adults who had symptoms of ADHD as children.

The dose is usually increased gradually to find the amount which works, but not more.

Methylphenidate

Methylphenidate is the most commonly used medication for ADHD. It belongs to a group of medicines called stimulants that work by increasing activity in the brain, particularly in areas that play a part in controlling attention and behavior.

The medication is often only licensed for children and adolescents but used frequently in adults as well is the treatment is adequately supervised by the prescribing doctor.

The medication can be taken as either immediate-release tablets (small doses taken two to three times a day), or as modified-release tablets (taken once a day in the morning, and they release the dose throughout the day).

Common side effects of methylphenidate include:

- a small increase in blood pressure and heart rate
- loss of appetite, which can lead to weight loss or poor weight gain
- trouble sleeping
- headaches
- stomach aches
- mood swings

Dexamphetamine

Dexamphetamine is also a stimulant, which is often licensed for children and adolescents only. Its biological effect is similar to methamphetamine.

Dexamphetamine is usually taken as a tablet once or twice a day, although an oral solution is also available.

Common side effects of dexamphetamine include:

- decreased appetite
- mood swings
- agitation and aggression
- dizziness
- headaches
- diarrhea
- nausea and vomiting

Lisdexamphetamine

Lisdexamphetamine is broadly similar to dexamphetamine and can be continued in adulthood.

Common side effects of lisdexamphetamine include:

- decreased appetite, which can lead to weight loss or poor weight gain
- aggression
- drowsiness
- dizziness
- headaches
- diarrhea
- nausea and vomiting

Atomoxetine

Atomoxetine is a selective noradrenaline reuptake inhibitor (SNRI), which means it increases the levels of serotonin and norepinephrine, although the latter is probably the neurotransmitter which plays a greater role in ADHD.

It comes in capsules, taken once or twice a day, and is in many countries licensed for the treatment of ADHD symptoms in adults.

Common side effects of atomoxetine include:

- a small increase in blood pressure and heart rate

- nausea and vomiting
- stomach aches
- trouble sleeping
- dizziness
- headaches
- irritability

Atomoxetine has also been linked to some more serious side effects, such as suicidal thoughts and liver damage.

Bupropion and other Antidepressants

Bupropion and other antidepressants are currently investigated for their effectiveness. They seem to work in some patients with ADHD, especially if it is a later form.

Diet and Supplements

There is no strong evidence that particular diets or supplements have a beneficial effect. However, taking care of oneself and staying healthy is particularly important in patients with ADHD, as they are at a higher risk of losing track of caring for themselves.

Diets and supplements are not without risks and this also needs to be communicated to patients.

Diet

People with ADHD should eat a healthy, balanced diet. Some people may notice a link between types of food and worsening ADHD symptoms. For example, sugar, food colourings and additives, and caffeine are often blamed for aggravating hyperactivity, and some people believe they have intolerances to wheat or dairy products, which may add to their symptoms. This can be discussed with a professional.

Supplements

Some studies have suggested that supplements of omega-3 and omega-6 fatty acids may be beneficial in people with ADHD, although the evidence supporting this is very limited.

Self-Help

Because ADHD is a complex disorder and each person is unique, it is difficult to make recommendations for all adults who have ADHD. Some suggestions which have helped patients in the past are the following:

- Making a list of tasks to accomplish each day. Prioritizing the items. Making sure one is not trying to do too much.
- Taking time to set up systems to file and organizing information. Getting in the habit of using these systems consistently.
- Breaking down tasks into smaller, more manageable steps. Considering using checklists.
- Carrying a notebook or electronic device to make notes, so one does not forget important tasks.
- Using sticky pads to write notes to yourself. Putting them on the fridge, on the bathroom mirror, in the car or in other places where one sees the reminder.
- Keeping an appointment book or electronic calendar to track appointments and deadlines.
- Asking for help from family members or other loved ones.
- Following a routine that's consistent from day to day and keep items, such as keys and wallet, in the same place.



Dr Jonathan Haverkamp, M.D. MLA (Harvard) LL.M. trained as a medical doctor, in psychiatry and psychotherapy, and works in private practice for psychotherapy and counselling in Dublin, Ireland. He also has advanced degrees in management and law. He has published several books and close to two hundred articles on topics in psychiatry, psychotherapy and communication. The author can be reached by email at jonathanhaverkamp@gmail.com or on the websites www.jonathanhaverkamp.ie and www.jonathanhaverkamp.com.

References

- American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed. Washington, DC: Author; 1994.
- Andersson J, Jenkinson M, Smith S. Non-linear optimisation (FMRIB technical report No. TR07JA1) Oxford, UK: Oxford University Press; 2007a.
- Andersson J, Jenkinson M, Smith S. Non-linear registration, aka spatial normalisation (FMRIB technical report No. TR07JA2) Oxford, UK: Oxford University Press; 2007b.
- Ashburner J, Friston KJ. Voxel-based morphometry—The methods. *NeuroImage*. 2000;11(Pt. 1):805–821.
- Barkley RA. Behavioral inhibition, sustained attention, and executive functions: Constructing a unifying theory of ADHD. *Psychological Bulletin*. 1997;121:65–94.
- Berquin PC, Giedd JN, Jacobsen LK, Hamburger SD, Krain AL, Rapoport JL, Castellanos FX. Cerebellum in attention-deficit hyperactivity disorder: A morphometric MRI study. *Neurology*. 1998;50:1087–1093.
- Biederman J, Petty CR, Fried R, Kaiser R, Dolan CR, Schoenfeld S, Faraone SV. Educational and occupational underattainment in adults with attention-deficit/hyperactivity disorder: A controlled study. *Journal of Clinical Psychiatry*. 2008;69:1217–1222.
- Bledsoe J, Semrud-Clikeman M, Pliszka SR. A magnetic resonance imaging study of the cerebellar vermis in chronically treated and treatment-naive children with attention-deficit/hyperactivity disorder combined type. *Biological Psychiatry*. 2009;65:620–624.
- Bush G, Luu P, Posner MI. Cognitive and emotional influences in anterior cingulate cortex. *Trends in Cognitive Sciences*. 2000;4:215–222.
- Castellanos FX, Giedd JN, Berquin PC, Walter JM, Sharp W, Tran T, Rapoport JL. Quantitative brain magnetic resonance imaging in girls with attention-deficit/hyperactivity disorder. *Archives of General Psychiatry*. 2001;58:289–295.
- Castellanos FX, Lee PP, Sharp W, Jeffries NO, Greenstein DK, Clasen LS, Rapoport JL. Developmental trajectories of brain volume abnormalities in children and adolescents with attention-deficit/hyperactivity disorder. *Journal of the American Medical Association*. 2002;288:1740–1748.

- Caviness VS, Meyer J, Makris N, Kennedy DN. MRI-based topographic parcellation of human neocortex: An anatomically specified method with estimate of reliability. *Journal of Cognitive Neuroscience*. 1996;8:566–587.
- First M, Spitzer R, Gibbon M, Williams J. Structured clinical interview for DSM-IV Axis I disorders. Washington, DC: American Psychiatric Press; 1997.
- Good CD, Johnsrude IS, Ashburner J, Henson RN, Friston KJ, Frackowiak RS. A voxel-based morphometric study of ageing in 465 normal adult human brains. *NeuroImage*. 2001;14:21–36.
- Hallowell EM, Ratey J. *Driven to Distraction*, Pantheon Books, New York, 1994.
- Haverkamp, C. J. (2017). Communication-Focused Therapy (CFT) for ADHD. *J Psychiatry Psychotherapy Communication*, 6(4), 110–115.
- Haverkamp, C. J. (2018a). *Communication Patterns and Structures*.
- Haverkamp, C. J. (2018b). *Communication Techniques in Psychotherapy - Part I*.
- Hollingshead AB. Four factor index of social status. New Haven, CT: Yale University Press; 1975.
- Jenkinson M, Bannister P, Brady M, Smith S. Improved optimization for the robust and accurate linear registration and motion correction of brain images. *NeuroImage*. 2002;17:825–841.
- Jenkinson M, Smith S. A global optimisation method for robust affine registration of brain images. *Medical Image Analysis*. 2001;5:143–156.
- Kessler RC, Adler L, Barkley R, Biederman J, Conners CK, Demler O, Faraone SV, Greenhill LL, Howes MJ, Secnik K, Spencer T, Ustun TB, Walters EE, Zaslavsky AM. The prevalence and correlates of adult ADHD in the United States: results from the National Comorbidity Survey Replication. *American Journal of Psychiatry*. 2006;163:716–723.
- Levinson HN. The diagnostic value of cerebellar-vestibular tests in detecting learning disabilities, dyslexia, and attention deficit disorder. *Perceptual and Motor Skills*. 1990;71:67–82.
- Linehan M. *Skills Training Manual for Treating Borderline Personality Disorder*. The Guilford Press, New York, 1993.
- Makris N, Biederman J, Monuteaux MC, Seidman LJ. Towards conceptualizing a neural systems-based anatomy of attention-deficit/hyperactivity disorder. *Developmental Neuroscience*. 2009;31:36–49.

- Makris N, Schlerf JE, Hodge SM, Haselgrove C, Albaugh MD, Seidman LJ, Schmahmann JD. MRI-based surface-assisted parcellation of human cerebellar cortex: An anatomically specified method with estimate of reliability. *NeuroImage*. 2005;25:1146–1160.
- Makris N, Seidman LJ, Valera EM, Biederman J, Monuteaux MC, Kennedy DN, Faraone SV. Anterior cingulate volumetric alterations in treatment-naive adults with ADHD: A pilot study. *Journal of Attention Disorders*. 2010;13:407–413.
- Mostofsky SH, Reiss AL, Lockhart P, Denckla MB. Evaluation of cerebellar size in attention-deficit hyperactivity disorder. *Journal of Child Neurology*. 1998;13:434–439.
- Orvaschel H. Schedule for affective disorder and schizophrenia for school-age children epidemiologic version. 5th ed. Fort Lauderdale, FL: Nova Southeastern University, Center for Psychological Studies; 1994.
- Pliszka SR, Glahn DC, Semrud-Clikeman M, Franklin C, Perez R, III, Xiong J, Liotti M. Neuroimaging of inhibitory control areas in children with attention deficit hyperactivity disorder who were treatment naive or in long-term treatment. *American Journal of Psychiatry*. 2006;163:1052–1060.
- Seidman LJ, Biederman J, Liang L, Valera EM, Monuteaux MC, Brown A, Makris N. Gray matter alterations in adults with attention-deficit/hyperactivity disorder identified by voxel based morphometry. *Biological Psychiatry*. 2011;69:857–866.
- Seidman LJ, Biederman J, Monuteaux MC, Doyle AE, Faraone SV. Learning disabilities and executive dysfunction in boys with attention-deficit/hyperactivity disorder. *Neuropsychology*. 2001;15:544–556.
- Seidman LJ, Biederman J, Valera EM, Monuteaux MC, Doyle AE, Faraone SV. Neuropsychological functioning in girls with attention-deficit/hyperactivity disorder with and without learning disabilities. *Neuropsychology*. 2006;20:166–177.
- Seidman LJ, Valera EM, Makris N. Structural brain imaging of attention-deficit/hyperactivity disorder. *Biological Psychiatry*. 2005;57:1263–1272.
- Semrud-Clikeman M, Pliszka SR, Lancaster J, Liotti M. Volumetric MRI differences in treatment-naive vs. chronically treated children with ADHD. *Neurology*. 2006;67:1023–1027.
- Smith SM. Fast robust automated brain extraction. *Human Brain Mapping*. 2002;17:143–155.
- Smith SM, Jenkinson M, Woolrich MW, Beckmann CF, Behrens TE, Johansen-Berg H, Matthews PM. Advances in functional and structural MR image analysis and implementation as FSL. *NeuroImage*. 2004;23(Suppl. 1):S208–S219.

- Smith SM, Nichols TE. Threshold-free cluster enhancement: Addressing problems of smoothing, threshold dependence and localisation in cluster inference. *NeuroImage*. 2009;44:83–98.
- Sonuga-Barke EJ. The dual pathway model of AD/HD: An elaboration of neuro-developmental characteristics. *Neuroscience & Biobehavioral Reviews*. 2003;27:593–604.
- Stoodley CJ, Schmahmann JD. Functional topography in the human cerebellum: A meta-analysis of neuroimaging studies. *NeuroImage*. 2009;44:489–501.
- Strick PL, Dum RP, Fiez JA. Cerebellum and nonmotor function. *Annual Review of Neuroscience*. 2009;32:413–434.
- Valera EM, Faraone SV, Murray KE, Seidman LJ. Meta-analysis of structural imaging findings in attention-deficit/hyperactivity disorder. *Biological Psychiatry*. 2007;61:1361–1369.
- Valera EM, Spencer RM, Zeffiro TA, Makris N, Spencer TJ, Faraone SV, Seidman LJ. Neural substrates of impaired sensorimotor timing in adult attention-deficit/hyperactivity disorder. *Biological Psychiatry*. 2010;68:359–367.
- Volkow ND, Wang GJ, Newcorn J, Fowler JS, Telang F, Solanto MV, Pradhan K. Brain dopamine transporter levels in treatment and drug naive adults with ADHD. *NeuroImage*. 2007;34:1182–1190.
- Wechsler D. Wechsler Adult Intelligence Scale III [manual] 3rd ed. San Antonio, TX: The Psychological Corporation; 1997.
- Wilkinson GS. WRAT3 Wide Range Achievement Test: Administration manual. Wilmington, DE: Wide Range; 1993.
- Zhang Y, Brady M, Smith S. Segmentation of brain MR images through a hidden Markov random field model and the expectation-maximization algorithm. *IEEE Transactions on Medical Imaging*. 2001;20:45–57.

This article is solely a basis for academic discussion and no medical advice can be given in this article, nor should anything herein be construed as advice. Always consult a professional if you believe you might suffer from a physical or mental health condition. Neither author nor publisher can assume any responsibility for using the information herein.

Trademarks belong to their respective owners. No checks have been made.

This article has been registered with the U.S. Copyright Office. Unauthorized reproduction and/or publication in any form is prohibited. Copyright will be enforced.

© 2018, 2019 Christian Jonathan Haverkamp. All Rights Reserved
Unauthorized reproduction and/or publication in any form is prohibited.