



Differential Diagnosis of Autism: A Causal Analysis

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Abstract

A diagnosis without knowing the cause is merely a label that creates the illusion of understanding. Autism is over-diagnosed and now includes a spectrum of conditions of uncertain similarity, primarily because professionals are diagnosing by ticking off symptoms on a checklist with minimal understanding of cause and effect. This study (a) identifies the unique and defining characteristic of autism that is responsible for all its observed traits, (b) maps the neurophysiological differences between an autistic brain and a neurotypical brain, (c) explains the neuropsychological differences between autism and conditions that are often mistaken for it, and (d) provides a litmus test whereby you can know for certain if someone suspected of being autistic has been correctly diagnosed.

Keywords: Neuropsychology; Autism; Hyperfocus; Fear; Anxiety

Introduction

A diagnosis without knowing the cause is merely a label that creates the illusion of understanding. A comprehensive study in JAMA psychiatry strongly suggests that autism is being significantly over diagnosed [1]. Autism now includes a spectrum of conditions of uncertain similarity because professionals are diagnosing by ticking off symptoms on a checklist. Having certain autistic traits is not the same as autism. This situation can be remedied by replacing symptom surveys with differential diagnosis, i.e., distinguishing a specific condition from others that have similar clinical features.

Autistic Traits have a Common Cause

From intimate knowledge of how my own autistic brain operates, plus observation of the behaviors of three autistic family members and six other autistic people, I have compiled a list of 44 traits that all 10 of us have in common (Appendix A: Autistic Hyperfocus). All these traits have a common cause: hyperfocus.

Hyperfocus appears to be the unique and defining characteristic of autism that is responsible for all its observed traits. Hyperfocus is the perpetual and unrelenting state of intense single-minded concentration fixated on one thought pattern at a time, to the exclusion of everything else.

Hyperfocus keeps a person trapped in the mental/intellectual part of his mind with no ability to divide his attention between two thoughts (or stimuli), with the consequence that he never gets to feel his emotions. He can only process his emotions intellectually, after the fact. Without the ability to feel emotion, it is impossible to be spontaneous, to be emotionally available, to feel connected to others, or to be aware of how one is perceived. Anthony Hopkins spoke for every autistic person when he is reputed to have said, "My whole life I have felt like an outsider."

Hyperfocus prevents a person from running two mental programs simultaneously. He takes everything you say literally because he cannot also be questioning how you use words. Similarly, an autistic person cannot also be picking up on subtleties or social cues. He cannot lie spontaneously because that would require dividing his attention between the truth and a falsehood.

Hyperfocus can be so intense that any sudden interruption (e.g. a door opening, an unexpected question, accidentally dropping something) shatters the thought pattern and can be experienced as anywhere from annoying to devastating. Loud noises instantly switch hyperfocus to the noise, which is then experienced with much more intensity than does someone with a neurotypical brain.

Meditation is impossible for someone trapped in hyperfocus because meditation requires letting go of focus. It is also unlikely that an autistic person can be hypnotized. I tried it twice, to no avail. I was unable to divide my attention between the instructions and the experience I was supposed to be having.

Neurophysiology of Autism

The Cingulate Gyrus (CG) is that part of the brain which focuses attention (Appendix B: Cingulate Gyrus). Malfunction of the CG appears to be what causes autistic hyperfocus. The autistic person's attention is always fixated on mental/intellectual activity in the left frontal cortex, with no ability to switch focus to emotional/creative activity that is simultaneously occurring in the right frontal cortex. To call this left-brain dominance would be an understatement. It is a virtual left-brain exclusivity.

The EEG neurofeedback, I have done on the autistic brain reveals high alpha activity in both frontal lobes. In the neurotypical brain, however, alpha activity (8-12 Hz) is high only in the right frontal cortex, whereas the left frontal cortex reveals high beta activity (12.5–30 Hz). Unusually high alpha activity in the left brain of autistic people appears to substitute for the inability to access creativity from the right brain (Appendix C: Differential Diagnosis).

Neurofeedback also reveals that the amygdala (fear center) in autism is inactive. This is consistent with the observation that autistic people are incapable of experiencing fear.

Autism and Fear

Hyperfocus prevents autistic people from being able to feel emotions as they happen. They can only process their emotions intellectually, a process that can often take 24 hours or so. By the time an emotion has been processed, it is too late to be able to feel it.

Nature has programmed into every human being an automated fear response that warns of perceived threats or impending danger.

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Autistic people are the only ones who are incapable of experiencing this fear response. If you encounter someone who has never felt fear of any kind, this person is most assuredly locked into autistic hyperfocus.

In every risky, dangerous, or life-threatening situation, the autistic person is always hyperfocused on the event itself and is incapable of feeling fear or even nervousness at that moment. In my entire life, including 17 years of experience in martial arts, I have never once felt fear of any kind.

Sometimes autistic people may intellectualize about fear, for example saying that after thinking about such-and-such decided that it could be a scary thing. However, they are incapable of actually feeling fear.

Autism and Anxiety

Anxiety is not fear. Anxiety is not a thing unto itself. It is simply a warning signal that bypasses the intellect to warn an autistic person of deep emotions that are struggling to be processed.

Whenever I feel anxiety, I stop, take a deep breath, and figure out which emotion is struggling to be acknowledged. Sometimes this involves deduction or running down a mental checklist. As soon as the emotion is named, the anxiety immediately stops.

Comparison to ADHD and OCD

Autism is 100 percent. There are no shades of autism, and the term autistic tendencies make no sense. One is either autistic or he is not. Having autism precludes also having ADHD or OCD.

Both ADHD and OCD share a common trait, fickle focus, which is defined as intervals of intense mental fixation interspersed with episodes of distraction or impulsiveness. Fickle focus can look like hyperfocus that comes and goes, but this is impossible because autistic hyperfocus is perpetual and unrelenting. Autistic people never get any relief from their hyperfocus.

Autism appears to be entirely neurophysiological in origin. ADHD and OCD appear to be caused or aggravated by a biochemical imbalance of neurotransmitters. Low dopamine is suspected in ADHD, and low serotonin suspected in OCD (Appendix C: Differential Diagnosis).

Comparison to PTSD

In both autism and PTSD, alpha frequencies predominate over beta in the left frontal lobe. In both cases, this phenomenon seems to

substitute for being unable to access alpha frequencies directly from the right frontal lobe. The difference is that in PTSD the person has put in place a psychological block (as an avoidance mechanism) to remembering specific horrific memories normally accessed from the right frontal lobe, whereas the autistic person is neurologically incapable of accessing anything from his right frontal lobe (Appendix C: Differential Diagnosis).

A further difference is that PTSD responds to therapy whereas autism does not. No amount of counseling can talk a person out of hyperfocus.

The Litmus Test

Hyperfocus is the unique and defining characteristic of autism. Hyperfocus prevents someone from dividing attention between two thought patterns or two stimuli at the same time. An autistic person talking to you is incapable of feeling any emotion in that moment. The surest way to find out if someone is autistic is to ask these five questions, to which you will receive the following responses:

How often do you cry?	“never” or “rarely”
How often do you laugh?	“never” or “rarely”
What are you afraid of?	either “nothing” or an intellectual answer
What are you feeling right now?	either “nothing” or an intellectual answer
Do you ever get bored?	“never”

Anyone who answers all five questions as above is autistic. Anyone who answers four or fewer as above is not autistic. [Note: If the person answers the third question with a phobia (e.g., of heights), then re-ask the question this way, “Aside from this phobia, do you normally experience fear of any kind?”]

Conflict of Interest

There is no conflict of interest.

References

1. Rødgaard EM, Jensen K, Vergnes JN, Soulières I, Mottron L (2019) Temporal changes in effect sizes of studies comparing individuals with and without autism: a meta-analysis. *JAMA Psychiatry* 76:1124-1132.

Appendix A: Autistic Hyperfocus

Hyperfocus is the unique and defining characteristic of autism that appears to be responsible for all 44 of its observed traits, as listed below. Hyperfocus is the perpetual and unrelenting state of intense single-minded concentration fixated on one thing at a time, to the exclusion of everything else.

Mental traits

- perpetual hyperfocus: intense single-minded concentration
- trapped in thoughts
- mind always busy, tendency to overthink.
- passionately pursues interests
- amasses encyclopedic knowledge about areas of interest
- self-awareness but no social awareness
- interruptions trigger agitation, confusion, or anxiety

Sensory overload

- hypersensitivity to noise and other sensory assaults
- experiences anxiety from being mentally trapped in the noise or assault
- overwhelmed by overhearing unwanted conversations
- frequently overwhelmed by too much information
- coping with computers/electronics and filling in forms may cause anxiety
- sensory overload makes it impossible to think or focus
- often has difficulty listening to radio or talking with others while driving

Emotional traits

- feels like an outsider
- unable to feel emotion
- may have physiological responses instead of emotion
- processes emotions intellectually
- anxiety bypasses the intellect to warn of unprocessed emotions
- incapable of experiencing fear
- can be angry without knowing so
- never (or rarely) cries or laughs; never has temper tantrums
- cannot nurture self psychologically
- needs to shrink from displays of emotion by others

Social traits

- lacks the innate motivation to socialize
- unaware of feelings, needs, and interests of others
- no awareness of how perceived by others
- unaware of socially appropriate responses

- doesn't get subtleties; unable to take hints.
- no awareness of flirting

In conversation

- takes everything literally
- easier to monologue than dialogue
- oblivious to motivations of others while they are speaking
- doesn't pick up on sarcasm
- misses social cues and nonverbal communication
- participating in conversations with two or more others can be overwhelming
- may have difficulty following topic changes

In relationships

- understands what love is but cannot feel love
- cannot be emotionally available to others
- others cannot provide an emotional safety net

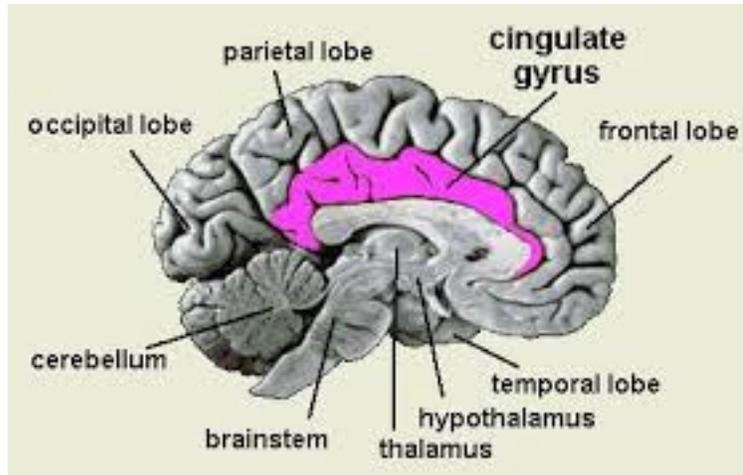
Temperament

- innate forthrightness tends to scare others
- never bored, always engaged in some mental activity
- consistent to daily routines; agitated if the routine is disrupted
- spontaneity not possible; activities need to be pre-planned
- cannot lie spontaneously; can tell only premeditated lies and prefers not to

Appendix B: Cingulate Gyrus

The cingulate gyrus (CG) is that part of the brain which focuses attention. Dysfunction of the CG is the suspected cause of hyperfocus, the perpetual state of intense single-minded concentration fixated on one thing at a time, to the exclusion of everything else. Hyperfocus appears to be the unique and defining characteristic of autism.

Hyperfocus causes under-functioning of the amygdala, the region of the brain which plays a central role in the processing of emotions, especially fear. An autistic person is incapable of experiencing fear.



Source: BrainMind.com

Appendix C: Differential Diagnosis

Differential diagnosis is distinguishing a specific condition from others that have similar clinical features. Based on similar behavior patterns, many with ADHD, OCD and even PTSD have been misdiagnosed as being autistic. However, the neurophysiological differences between autism and such other conditions can be profound. The neurology I am proposing for autism is that:

- a dysfunctional cingulate gyrus (CG) prevents a person from feeling any emotion, with the result that the amygdala is virtually non-functioning. An autistic person typically never experiences fear;
- the right frontal lobe in the autistic brain displays normal activity, with alpha frequencies (8-12 Hz) dominating over beta (12.5-30 Hz). However, a dysfunctional CG prevents access to this right brain activity; and
- the left frontal lobe in the autistic brain displays similar activity to the right frontal lobe, with alpha frequencies dominating over beta (opposite to the neurotypical brain). The dominant alpha frequencies are most probably compensating for the inability to access creativity from the right brain.

	Autism	PTSD	ADHD	OCD
Hyperfocus	hyperfocus ¹	n/a	fickle focus ²	fickle focus ²
Cingulate Gyrus				

	dysfunctional	functional	functional	functional
Amygdala	inactive	hyperactive	active	hyperactive
Left Frontal Lobe	high alpha activity	high alpha activity	high beta activity	high beta activity
Neurochemical Imbalance	n/a	n/a	low dopamine suspected	low serotonin suspected
Concentration	intense	poor	intense	intense
Distraction	never distracted	easily distracted	easily distracted	self-distracts
Social Aspects	unable to understand and respond to the needs of others	social skills unaffected by PTSD	poor social skills	may have social anxiety, fear of disapproval
Multitasking	unable to multitask	may be able to multitask	may be able to multitask	unable to multitask
Defense	n/a	avoidance	n/a	n/a
Emotional Effects	Incapable of feeling emotion. Processes emotions intellectually.	Resists memories of specific events that were emotionally devastating.	Can trigger intense emotions.	Compulsive behaviors may be attempts to relieve emotional stress.

¹**Hyperfocus** is defined as perpetual and unrelenting attention fixated on one thought or stimulus at a time, to the exclusion of everything else.

²**Fickle focus** is defined as intervals of intensely paying attention interspersed with episodes of distraction or impulsiveness.