

Neurodiversity

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NHS Education Scotland

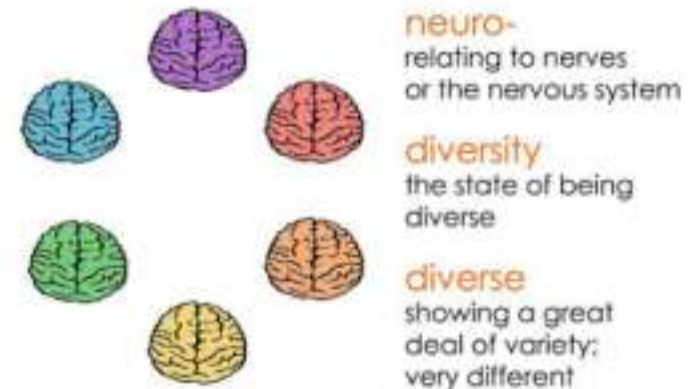
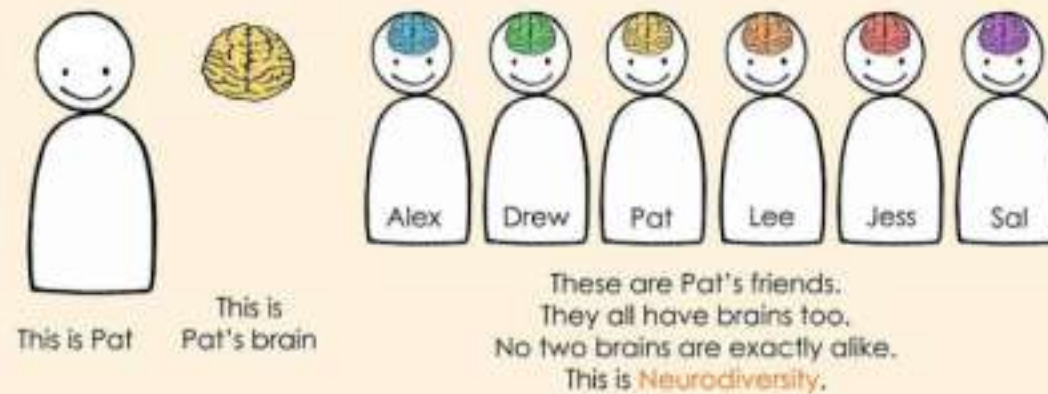




History of Neurodiversity

- 1997 - Coined by Judy Singer
- 1998 - First use in media - Harvey Blume
- 2004 - New York Times – Amy Harmon
- 2005 - A Mind Apart, Susanne Antonetta
- 2005 - Neurodiversity/Autism Pride Day
- 2009 – UK Study – Higher achievement in those who see themselves as neurodifferent
- 2013 – Wired Magazine – has “shaped the planet's past 20 years—and will continue driving the next”

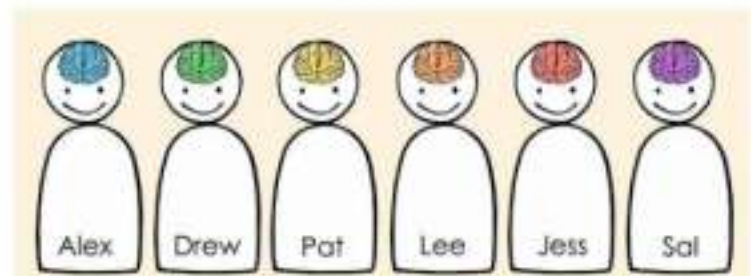
What is Neurodiversity?

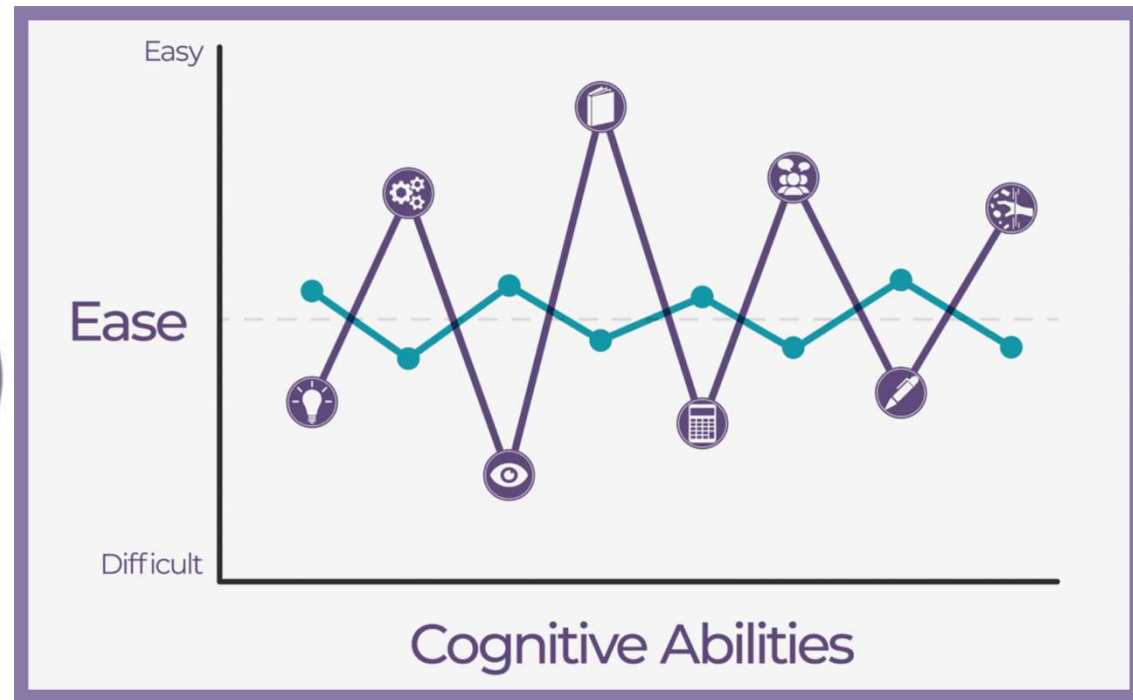
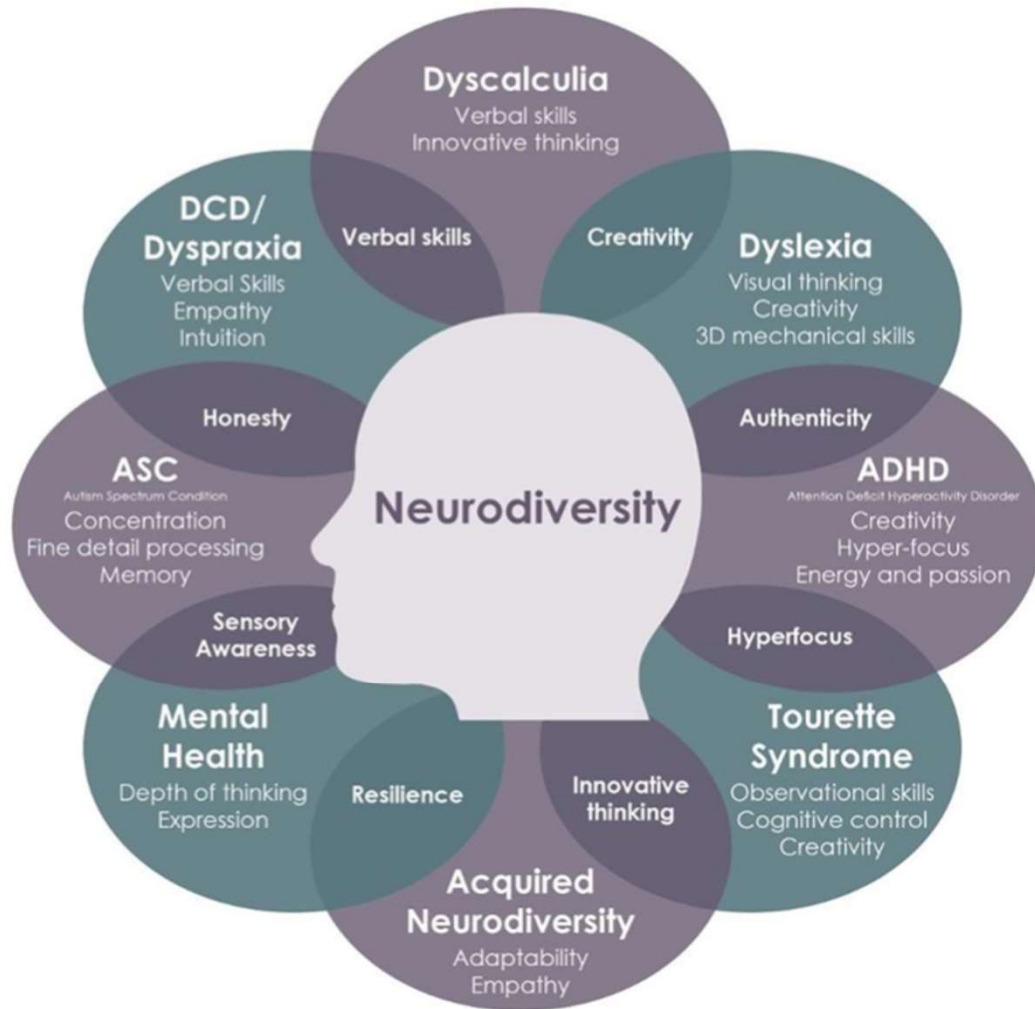


Some people's brains are similar enough that they behave in ways that are categorised and labelled. Some of these labels are typical, schizophrenic, bipolar, autistic, and epileptic.



All of these labels (except "typical") indicate neurodivergence, that is, a deviation of a brain from society's expectation of normality





Article contents

Summary

The medical perspective – NDDs

Neurodiversity and related terms

The National Autism Implementation Team model and definitions

Author contributions

Funding

Declaration of interest

References

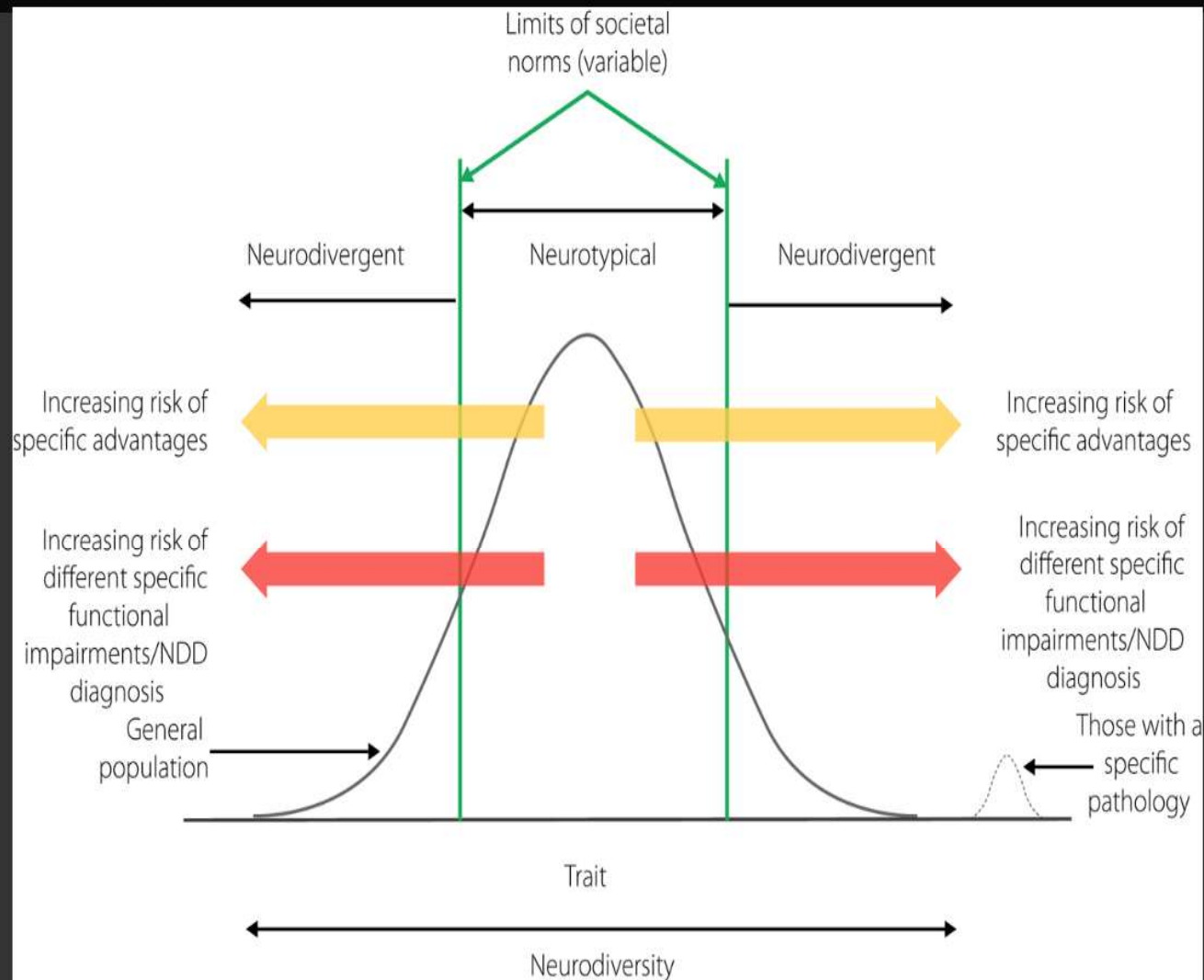


Fig. 1 The National Autism Implementation Team model illustrates the relationship between a neurocognitive function, the terms neurodiversity, neurotypical and neurodivergent. We assume the neurocognitive function is normally distributed in the population and societal norms are centred around the population norm. The green bounds represent societal norms. We describe the situation for the right side of the distribution, but it is equally applicable to the left side. The more the...

Our changing conception of autism / ASD

DSM-3 (1980)

Diagnostic and Statistical
Manual of Mental Disorders

Mental Disorders

Neurodevelopmental Disorders

Pervasive Development Disorders

Infantile Autism

- Onset before 30 months
- Lack of responsiveness to other people
- Gross deficits in language development
- Resistance to change
- Attachment to inanimate objects

Childhood Onset PDD

- Onset after 30 months
- Gross impairment in social relationships
- Anxiety and panic attacks
- Inappropriate fear or rage reactions
- Resistance to change
- Oddities of motor movement and speech
- Hyper-sensitive to sensory stimuli

Atypical Autism

Distortions in the development of multiple basic psychological functions that are involved in the development of social skills and language and that cannot be classified as either Infantile Autism or Childhood Onset PDD

In **DSM-1** (1952) and **DSM-2** (1968), autism was not listed as a disorder. Autistic behaviour was mentioned only as part of the description of childhood schizophrenia.

DSM-4 (1994)

Pervasive Development Disorders

1. Impairments in social interaction
2. Impairments in communication
3. Restricted, repetitive and stereotyped patterns of behavior, interests and activities

Autistic Disorder

- Onset before 36 months
- Two or more impairments in social interaction
- One or more impairments in communication
- One or more manifestations of restricted behaviours
- A total of 6 or more impairments

PDD-NOS (Not Otherwise Specified)

Severe and pervasive impairments in at least one of the three areas of diagnosis for Autistic Disorder, but the criteria are not met for any of the specific PDDs

Asperger's Disorder

- Two or more impairments in social interaction
- No impairments in communication
- One or more manifestations of restricted behaviours
- No delay in cognitive or language development

Childhood Disintegrative Disorder

- Regression in multiple areas of functioning after at least 2 years of apparently normal development.
- Clinically significant loss of previously acquired skills such as language, social skills, bowel or bladder control, play and motor skills and cognitive abilities.
- Impairments after regression in at least two of the three areas of diagnosis for Autistic Disorder.

Rett Disorder

- Onset of deceleration of head growth between 5 and 48 months
- Loss of previously acquired hand skills, social engagement and language skills
- Poorly coordinated gait and trunk movements.

DSM-5 (2013)

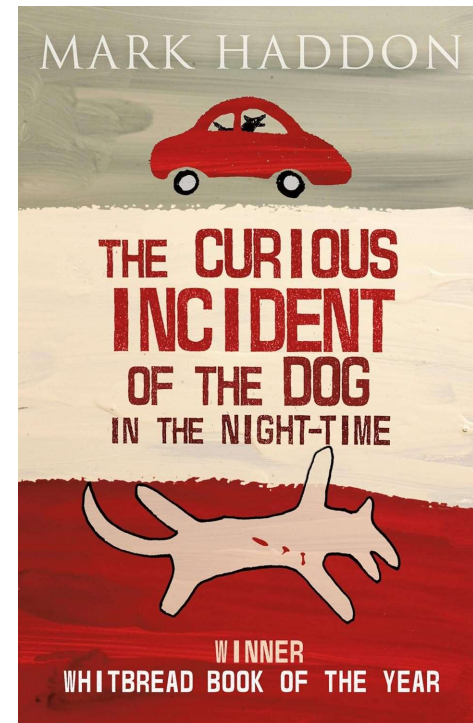
Autism Spectrum Disorders (ASD)

- A. Persistent deficits in social communication and social interaction
- B. Restricted, repetitive patterns of behavior, interests, or activities

	Social Deficits	Restricted Behaviors
Severe (Level 3) Requiring very substantial support	<ul style="list-style-type: none"> - Severe deficits in verbal and nonverbal social communication - Severe impairments in functioning - Very limited initiation of social interactions - Minimal response to social overtures from others 	<ul style="list-style-type: none"> - Inflexibility of behavior - Extreme difficulty coping with change - Restricted/repetitive behaviors markedly interfere with functioning in all spheres. - Great distress/difficulty changing focus or action.
Moderate (Level 2) Requiring substantial support	<ul style="list-style-type: none"> - Marked deficits in verbal and nonverbal social communication - Social impairments apparent even with supports in place - Limited initiation of social interactions - Reduced or abnormal responses to social overtures from others. 	<ul style="list-style-type: none"> - Inflexibility of behavior - Difficulty coping with change - Restricted/repetitive behaviors appear frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts. - Distress and/or difficulty changing focus or action.
Mild (Level 1) Requiring support	<ul style="list-style-type: none"> - Without supports in place, deficits in social communication cause noticeable impairments. - Difficulty initiating social interactions - Clear examples of atypical or unsuccessful response to social overtures of others. - May appear to have decreased interest in social interactions. 	<ul style="list-style-type: none"> - Inflexibility of behavior causes significant interference with functioning in one or more contexts. - Difficulty switching between activities. - Problems of organization and planning hamper independence.

Social (Pragmatic) Communication Disorder

Meets the social deficits criteria of ASD, but not the restricted behaviours criteria



The blockbuster film *Rain Man* was based on a man, Kim Peek, who was not autistic. The author of the bestselling *Curious Incident of the Dog in the Nighttime* book has said that he did not research autism or have a personal connection to the condition.⁹

Survey all NES Trainees

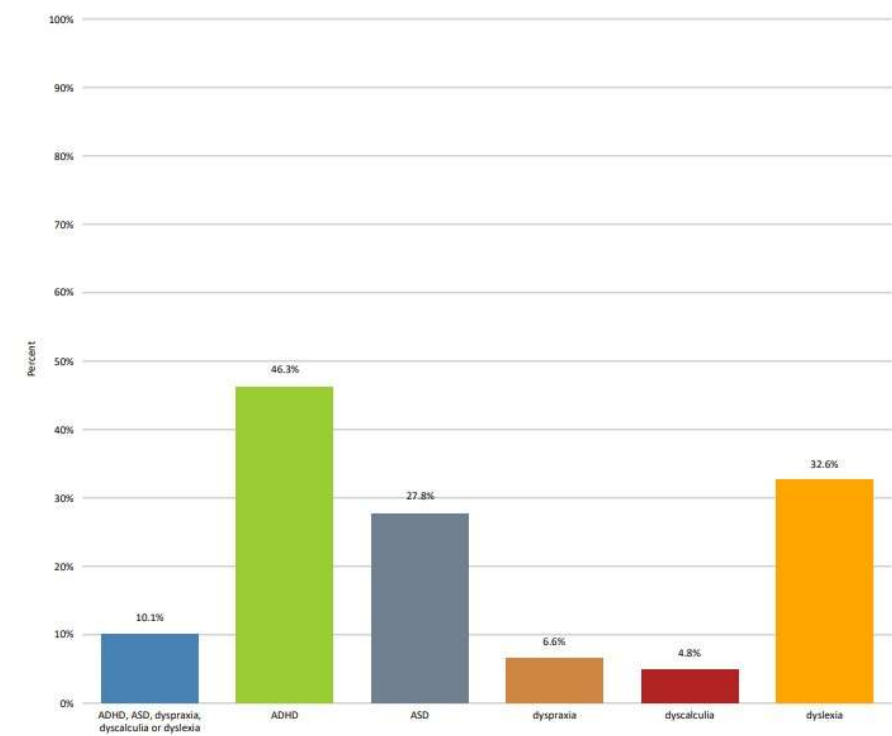
584/6860

8.5% response rate

3.3% total self-declared neurodiverse

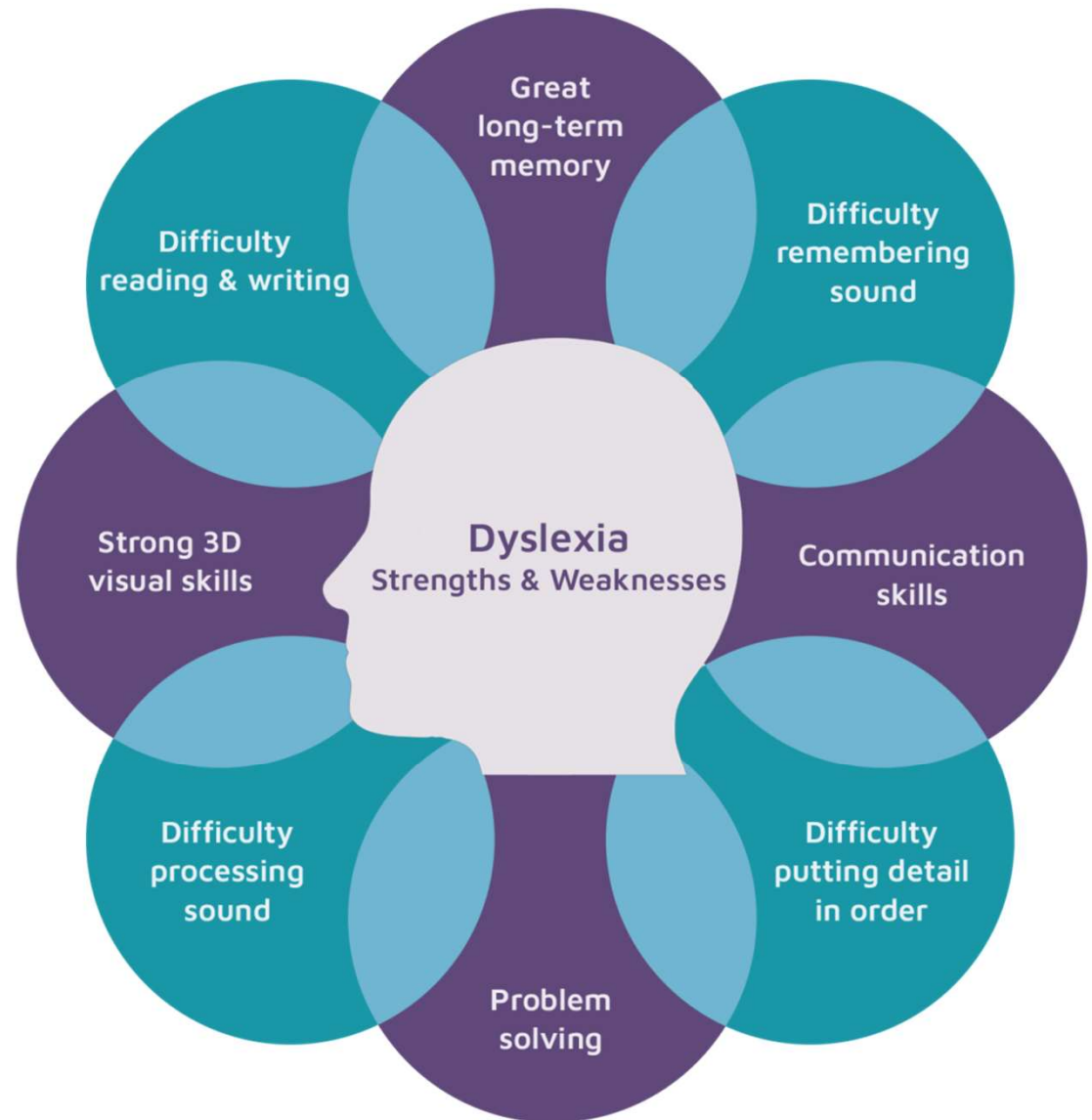
Dr P Sharma SCLF 2024

2. Please choose from the following options



Name	Percent
ADHD, ASD, dyspraxia, dyscalculia or dyslexia	10.1%
ADHD	46.3%
ASD	27.8%
dyspraxia	6.6%
dyscalculia	4.8%
dyslexia	32.6%
N	227

Dyslexia *Strengths and Weaknesses*



Dyslexia

The British Dyslexia Association defines dyslexia as a "specific learning difficulty (SpLD) that mainly affects the development of literacy and language related skills."

SpLD that impairs people's abilities around reading texts despite them having normal intelligence (National Institute of Neurological Disorders and Stroke, 2011)

Prevalence in the UK population is between 5-10%, depending on the definition

M:F 4:1

Among medical students, BMA (2009) prevalence given as 1.7%.

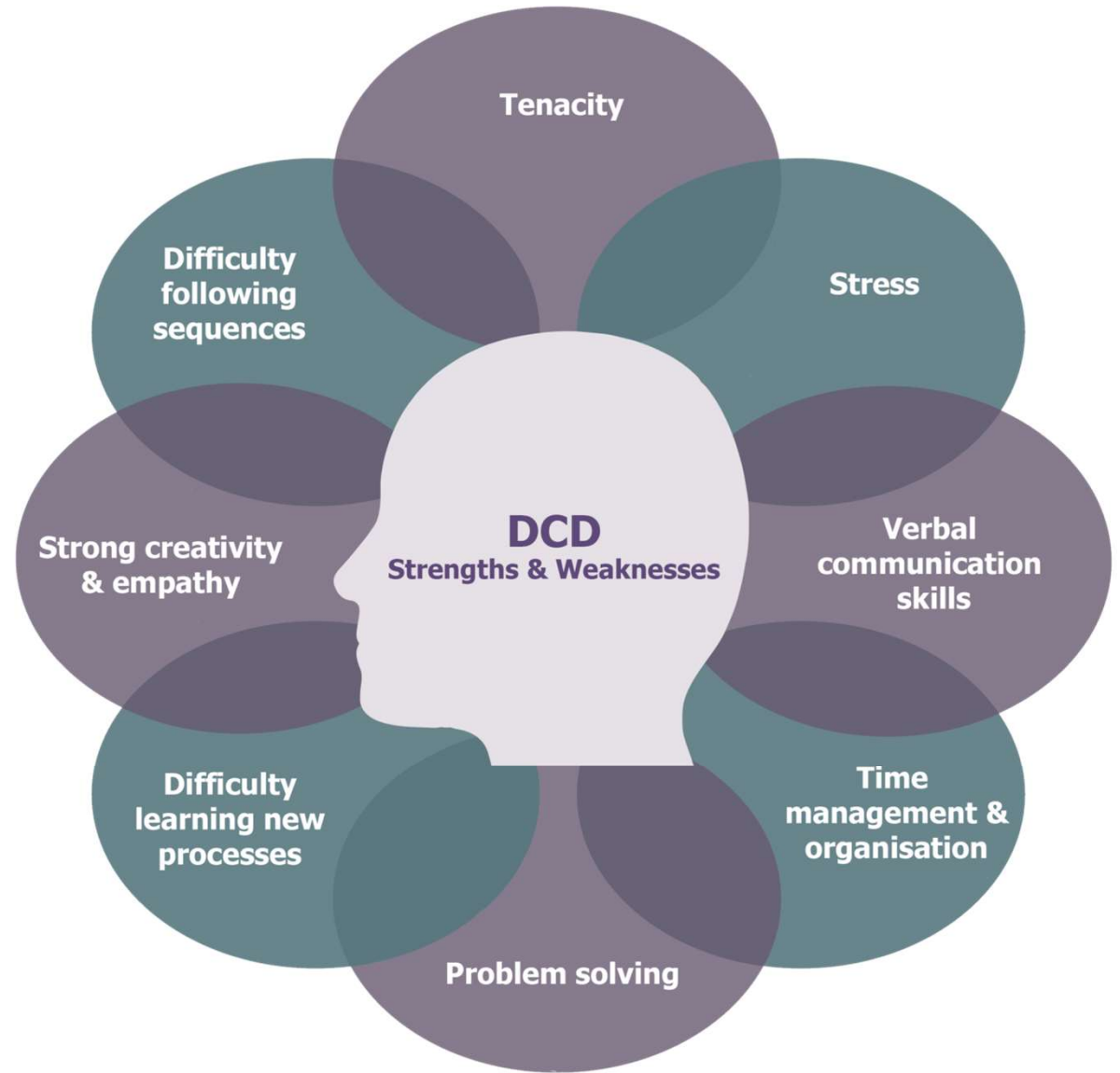
During medical training there are well established adjustments (inc support tutors and extra examination times), however, for students with dyslexia the transition to foundation training may exert additional pressures (e.g. communication, prescribing and organization)

There is no legal requirement in the UK to disclose dyslexia, but

if a person declares they have dyslexia, then their employers should ensure they are not treated unfavourably and are offered reasonable adjustments or support. (Equality Act 2010)

Diagnosis by an Educational Psychologist

Dyspraxia *Strengths and Weaknesses*



Based on the highly original work of Mary Colley, DANDA

Developmental Co ordination Disorder

Dyspraxia, also known as Developmental Coordination Disorder (DCD), is thought to affect up to 10% of the population and up to 2% severely.

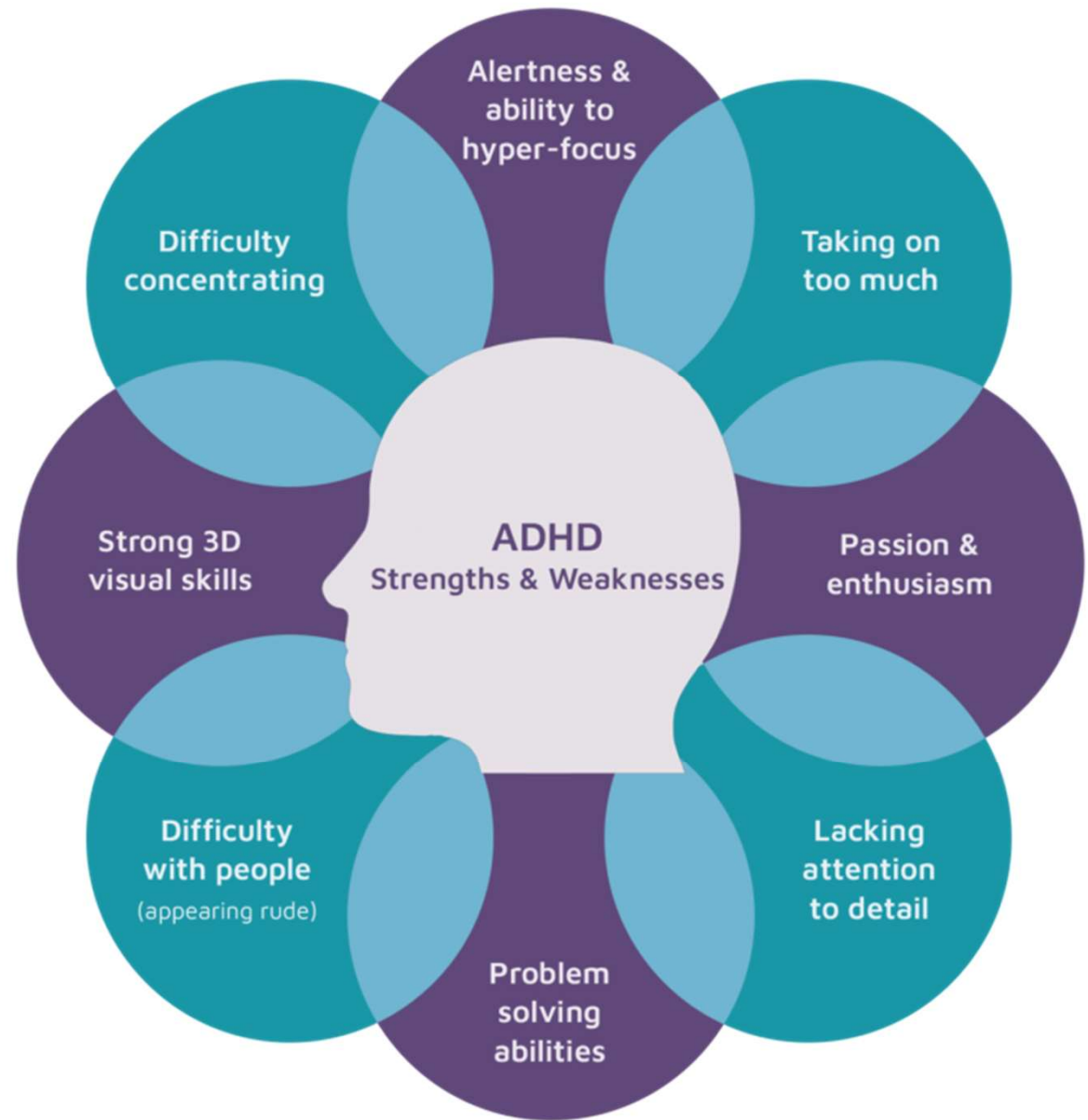
It can affect people of all intellectual abilities. Males are four times more likely to be affected than females. Dyspraxia/DCD can run in families.

There may be an overlap with other Specific Learning Differences (SpLDs) such as Attention Deficit Disorder (ADD) with Hyperactivity (ADHD), dyslexia and Conditions on the Autistic Spectrum (ASC).

The term 'dyspraxia' comes from the word 'praxis', which means 'doing, acting'. Dyspraxia/DCD can affect coordination skills, such as tasks requiring balance, playing sports or learning to drive a car; dyspraxia/DCD can also affect fine motor skills, such as writing or using small objects.

ADHD

Strengths and Weaknesses



How ADHD Affects The Brain

Prefrontal Cortex:

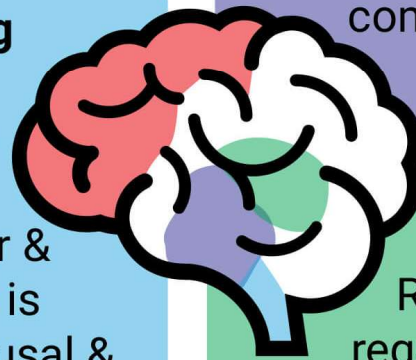
Responsible for organization, cognitive flexibility, self-control, & maintaining attention.

Basal Ganglia:

Helps regulate communication within the brain. Responsible for motor control, facilitating movement, and inhibiting competing movements.

Reticular Activating System:

Major relay system among the many pathways that enter & leave the brain that is responsible for arousal & consciousness. A deficiency in this region can cause inattention, impulsivity, or hyperactivity.

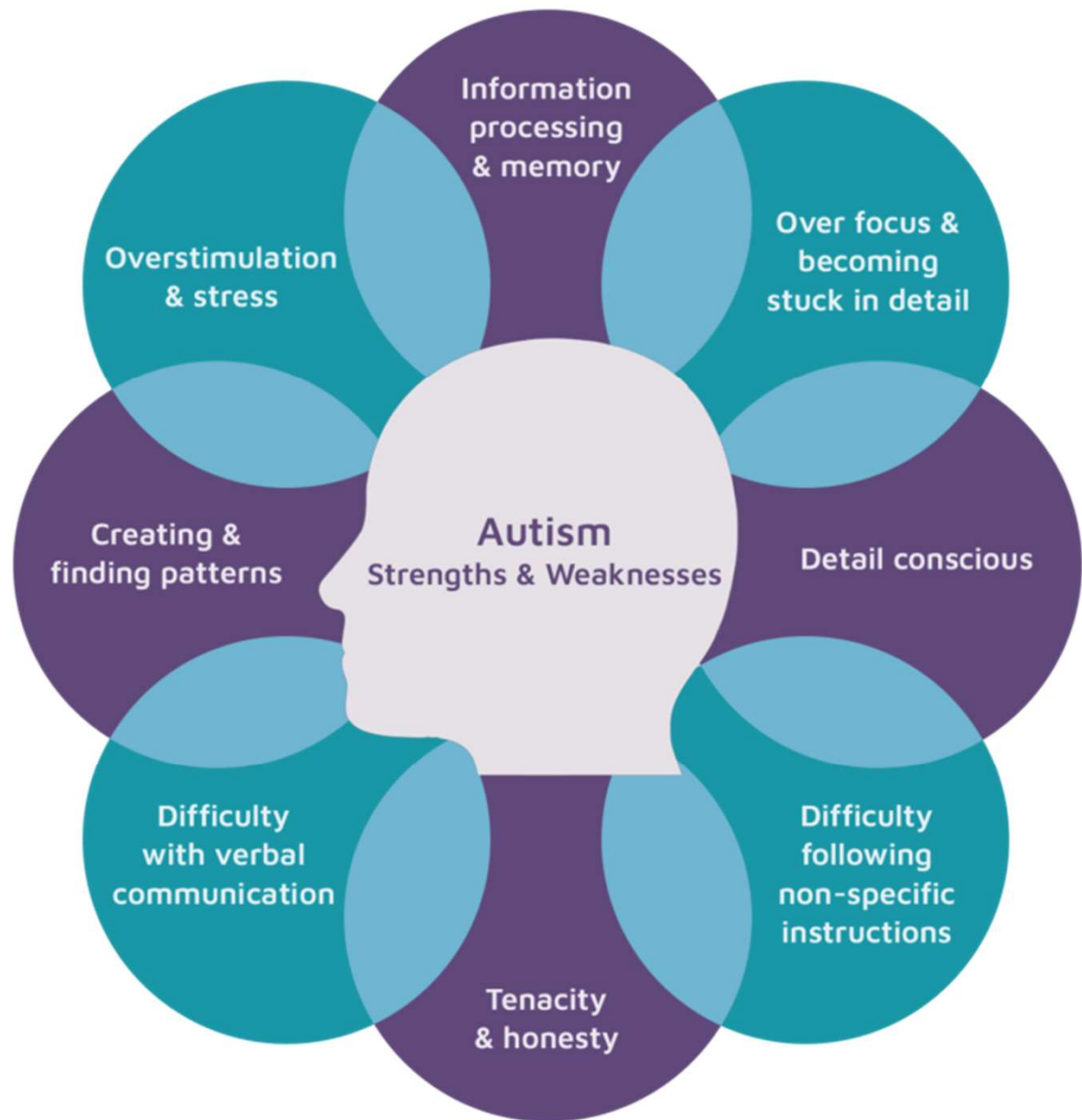


Limbic System:

Responsible for regulating emotions. A deficiency in this region might result in restlessness, inattention, or emotional volatility.

Autism (Autism Spectrum Condition)

Strengths and Weaknesses



Autism Spectrum

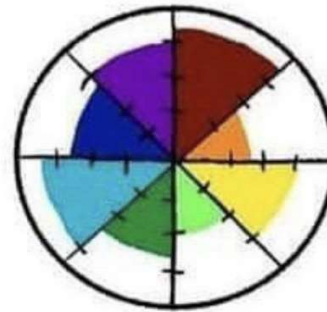
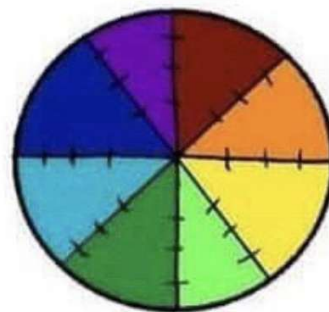
The Autism spectrum is not linear



less autistic

very autistic

The Autism Spectrum looks more like:



- Social skills
- fixations
- routines
- Sensory issues
- stimming
- perception
- executive func.
- other

→ Terms like "high functioning" and "low functioning" are harmful and are not used anymore

Autism - sketches

Autistic peer-to-peer information transfer is highly effective

Catherine J Crompton¹ , Danielle Ropar²,
Claire VM Evans-Williams³, Emma G Flynn⁴
and Sue Fletcher-Watson¹ 

Autism

1–9

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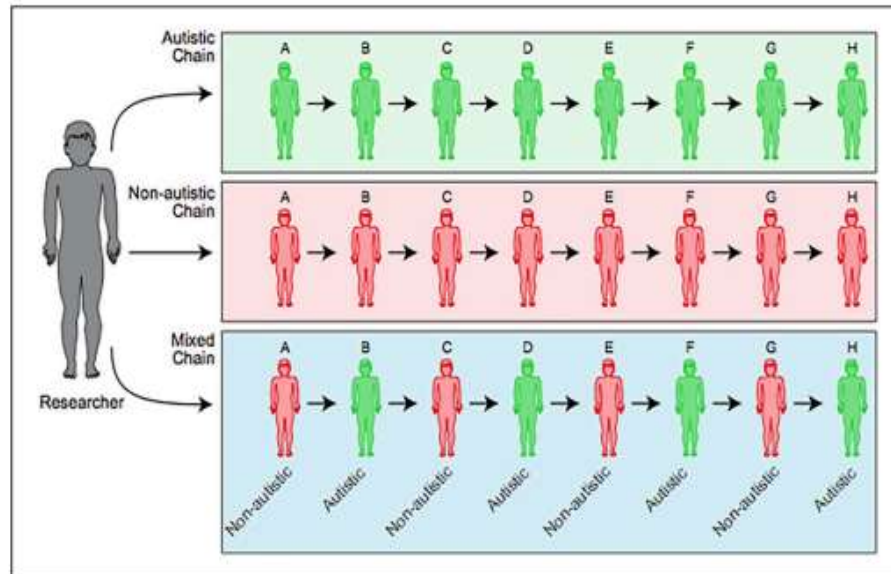


Figure 1. Illustration of the diffusion chain technique.

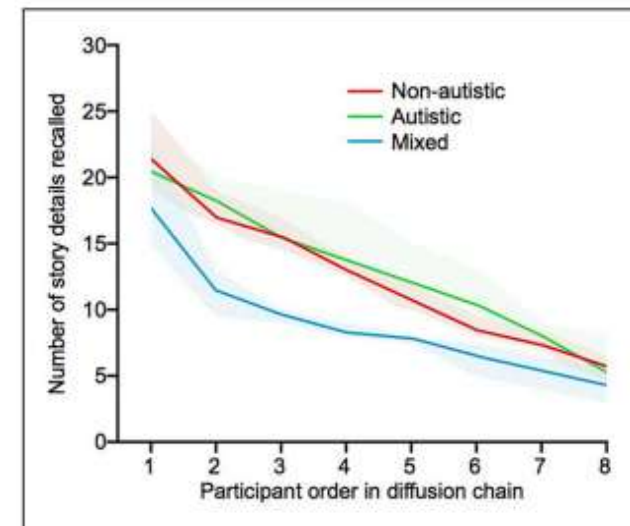
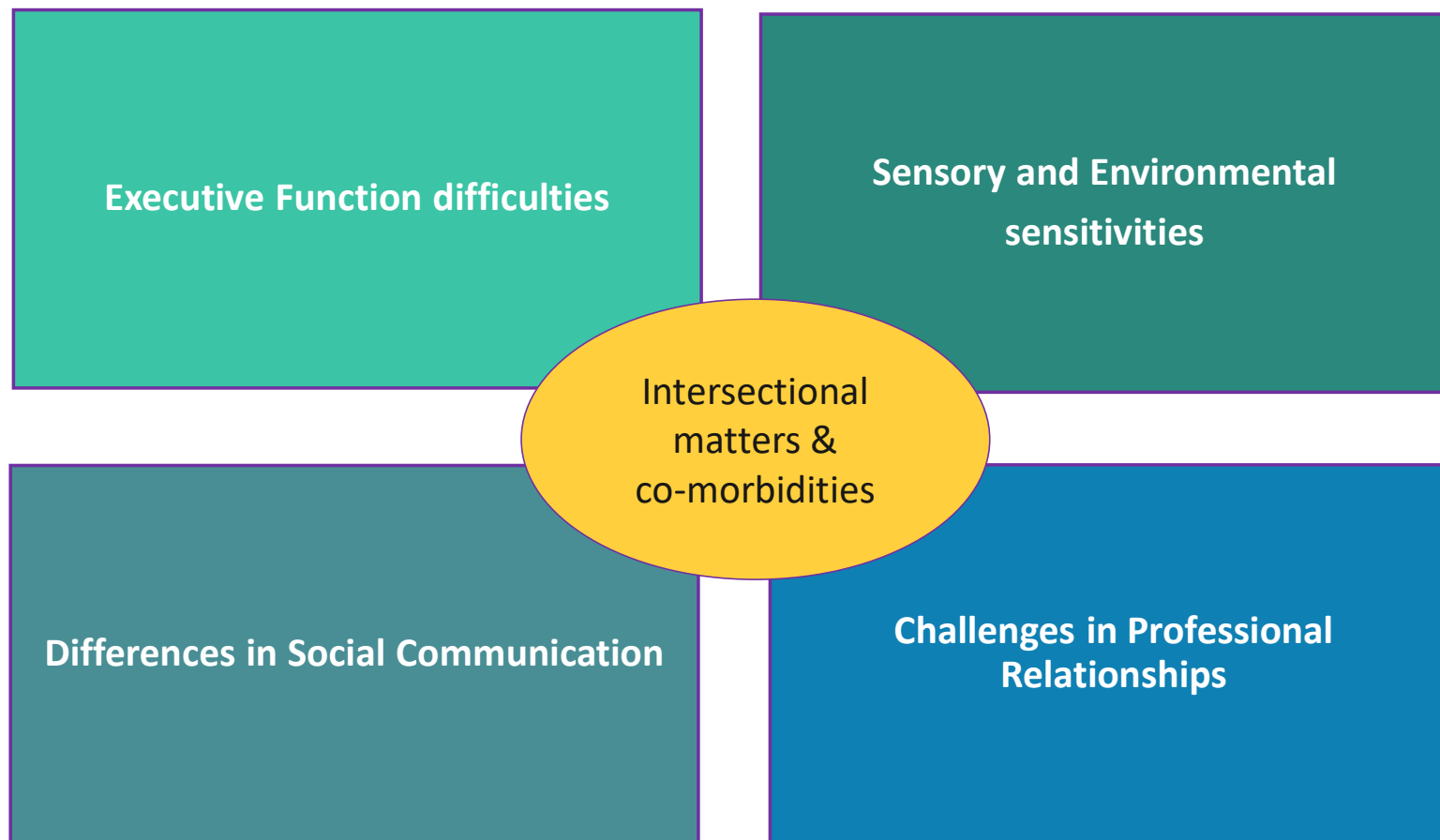
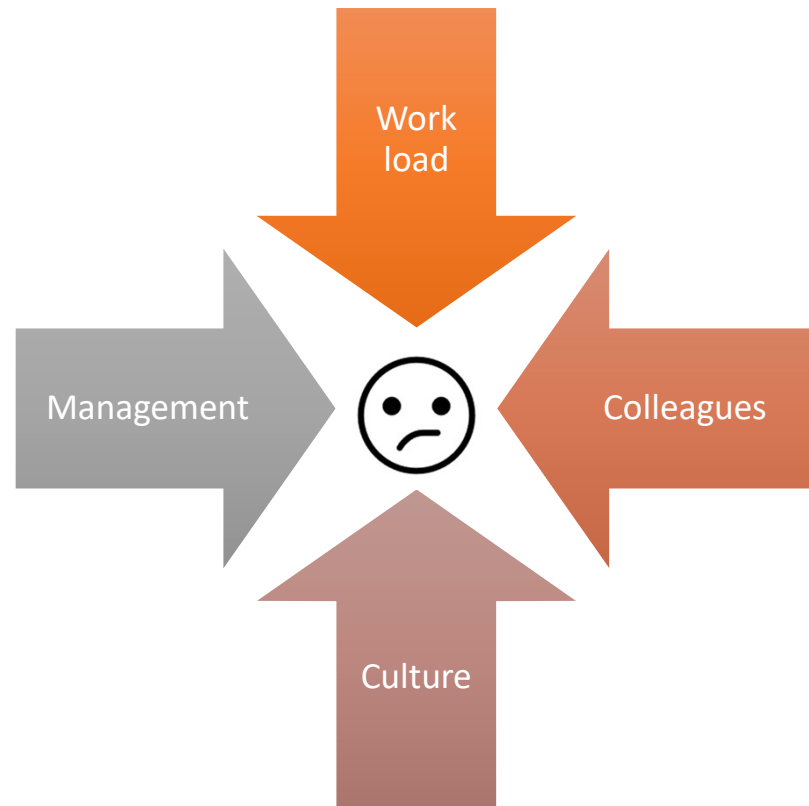


Figure 2. Mean and range of story details (out of 30) transferred in the diffusion chain, by group and position.

Challenges in Work



Environment



Disclosure and Non-Disclosure

Reasons of nondisclosure may include :

Fear of discrimination, bullying and harassment

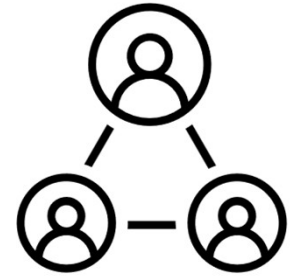
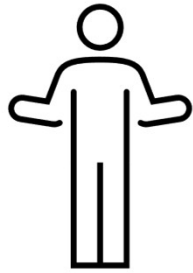
Cultural differences and perception of Neurodiversity

Qualitative and ethnographic studies (Kinsella et al, 2017; Shaw et al, 2017)

Seven in ten neurodivergent workers have experienced discrimination in the workplace



Source: Westminster Achievability Commission for Dyslexia and Neurodivergence



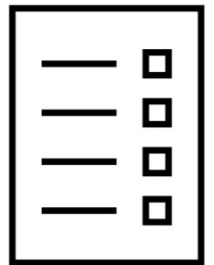
The
environment

The
Individual

Task



Support at work



Supporting Doctors with Neurodiversity –

(Think : Targeted, Tailed and Holistic)



Asset Based
approaches



Coaching



Career Guidance



Exam Support



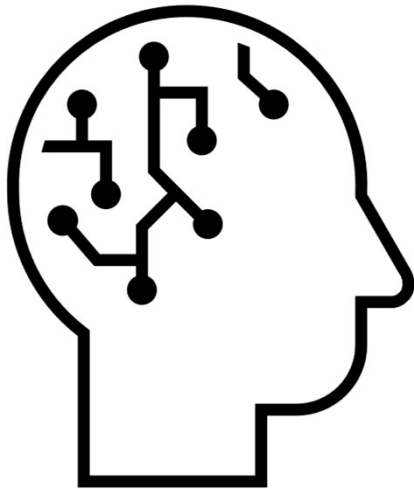
Communication and
Interpersonal
Relationships



Accept and Endorse



OH , Educational
Psychologists,



Inclusive Communication

- Use thoughtful and respectful language
- Identify and acknowledge potential unconscious bias
- Ask questions, make no assumptions and
- LISTEN
- Just because you can't see someone's differences / disabilities doesn't mean they don't exist
- Simplify processes and systems wherever possible
- Provide information in multiple formats
- Value diversity – it enriches our lives
- Create supportive environments

Emotions

Exploring Rejection Sensitive Dysphoria (RSD): Characteristics and Impact

Rapid Escalation

Emotions escalate swiftly and can become overpowering when faced with rejection or perceived rejection



Persistent and Lasting Impact

Emotions tend to linger well beyond the triggering event, influencing daily experiences and interactions



Extended Emotional Turbulence

Emotional turbulence due to RSD's intensity can persist, resulting in periods of heightened emotional turmoil



Dominance of Heightened Emotions

Emotional responses are notably intense and might overpower other emotional experiences



Intense Emotional Reaction to Rejection

Experiences significantly heightened emotional responses in reaction to rejection



Exploring Rejection Sensitive Dysphoria (RSD): Characteristics and Impact

Social Withdrawal

Might resort to social withdrawal as a way to reduce the likelihood of facing rejection, affecting relationships and interactions



Sensitive to Subtle Cues

Experiences an acute sensitivity to even subtle cues of potential rejection, leading to anticipatory emotional responses



Impact on Daily Functioning

RSD's emotional impact can affect various aspects of daily life, including relationships, work, focus, productivity, and overall well-being



Influence on Decision-Making

The fear of potential rejection can influence decision-making processes, impacting choices



Challenges in Emotional Regulation

Difficulties in managing and regulating emotions due to the distinctive intensity of RSD

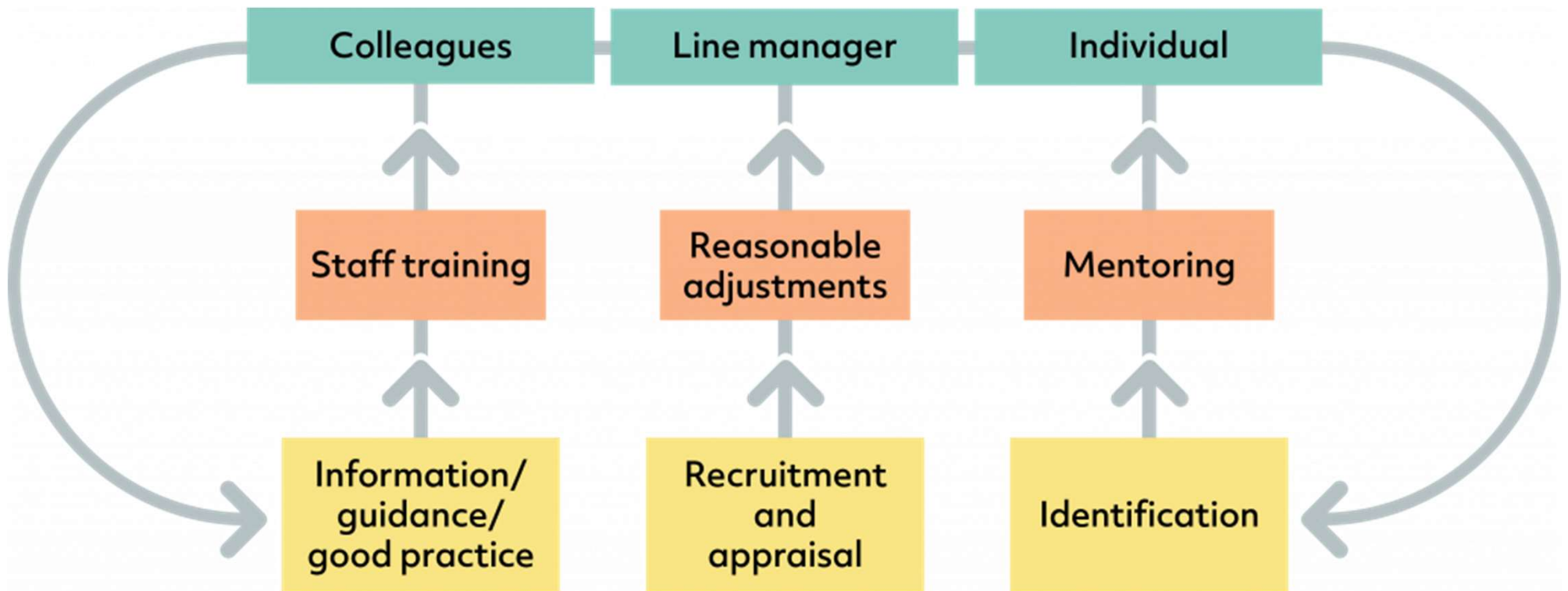


Strategies for employers

Neurodiversity at work: a biopsychosocial model
and the impact on working adults
Nancy Doyle

Typical adjustments for neurominorities	
Adjustment type	Example activity
Work Environment flexibility	Reducing sensory distractions by allowing flexible hours; use of private meeting rooms; noise-cancelling headphones; redesign of shared working space.
Schedule flexibility	Avoiding rush hour travel to prevent sensory overwhelm; remote working to avoid sensory overwhelm, improve concentration and reduce social communication demands.
Supervisor or co-worker support	Additional feedback time with supervisor; differences in instructions provided—more clarity or concreteness given.
Support from different stakeholders	Peer mentoring networks within the company; allowing support activities via employee assistance, mental health, or family support throughout the working day; allowing access to stakeholder groups and charities throughout the working day.
Executive functions coaching	Workplace coaching to focus on areas such as planning, prioritization, organizational skills using workplace coaching psychology.
Training	Adjustments to training provision including sending materials in advance or providing additional induction training.
Work-station adjustments	Use of dual screens to improve concentration, whiteboards and other aide memoires; standing desks with wobble boards to improve access to movement through the day.
Assistive technology and tools	Speech-to-text, text-to-speech software to reduce demands on literacy, handwriting skills and improve concentration; mind mapping software to support shift from overview to detailed thinking; specialist spell checkers designed for dyslexia; planning and memory software.
Literacy coaching	This will be targeted coaching based on the literacy requirements of the role rather than teaching basic skills, such as speed reading, making notes whilst reading, summarizing or structuring and planning written work.

Example : The Support 'Network'



Do they need
formal
diagnosis to
get help?

No, unless mild, they are likely to be classified as disabled for discrimination purposes. They do not need a formal diagnosis or to have disclosed any formal diagnosis to be protected.

No need for diagnosis for Access to Work input

Challenges



Role of appraisal system in providing pastoral and ND-friendly support.



Accessing diagnostic assessments- Specialist services



Reticence to access assessment/disclosure

Challenges – The granularity



Challenging the stigma of neurodiversity



Focusing on neurodivergent workers' strengths



Recruitment, selection and promotion – Exams and ARCPs



Training and development – understanding and necessary adjustments



Performance Markers - Equity



Fulfilling potential



Sensitivity towards reorganisation – Rotations, Organisational changes



Buy in from stakeholders



Sensitivity Training to supervisors and managers

Group Discussion A

Established SAS Craft Speciality

Known to be Autistic

MSF from staff reports 'rude at times when busy', 'hates being interrupted' and low score for approachability.

2 declared complaints around communication style.
Little reflection evidenced.

- 1) What could be done to support Dr A through appraisal process
- 2) What barriers to optimal work might be explored



Group Discussion B

New Consultant Physician

Recent diagnosis ADHD

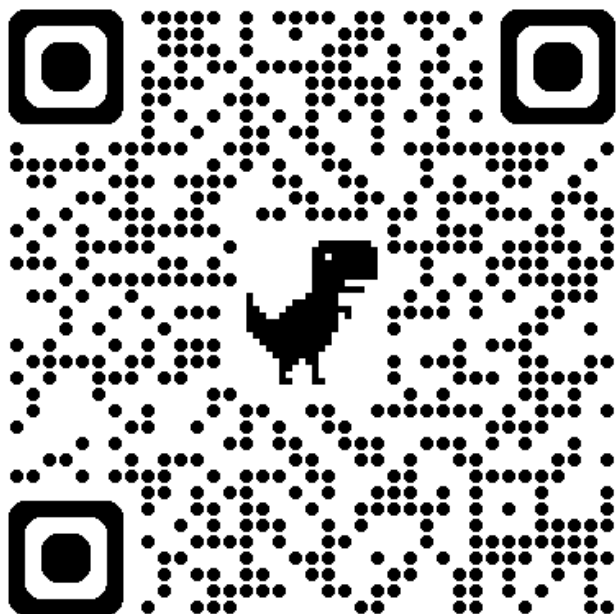
Needed prompting to complete usual steps prior to meeting

Little evidence linked to appraisal

- 1) What could be done to support Dr B through appraisal process
- 2) What barriers to optimal work might be explored



TURAS



Disability and neurodiversity

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[Continue your learning](#)

[Support](#)

[Resources for people managers](#)

[Resources for specific conditions](#)