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Ineffective pathways and the price of conjecture

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Abstract:

The inclusion of children with SEN into mainstream schools needs effort and cooperation by all those involved. Both educators and medical professions need to be skilled in identifying and supporting neurodiversity. This study explores the cross-professional understanding and support of four of the most prevalent neurodiversities: ASC, ADHD, DCD and dyslexia, to evaluate the efficiency of the diagnostic pathway and the subsequent support. Questionnaires were distributed throughout a number of training events for medical and educational practitioners asking what a condition was, and how it could be supported. Using a thematic analysis, data from 189 responses were examined and cross-referenced with diagnostic criteria, in addition to identifying the overarching themes of support. Results show a serious gap in awareness and knowledge of neurodiversity in both medical and educational sectors, followed by a cacophony of intervention, breaking the pathway for diagnosis before it begins and ultimately failing children and their families.

diagnosis, neurodiversity, autism, ADHD, DCD, dyspraxia, dyslexia, pathway

Introduction:

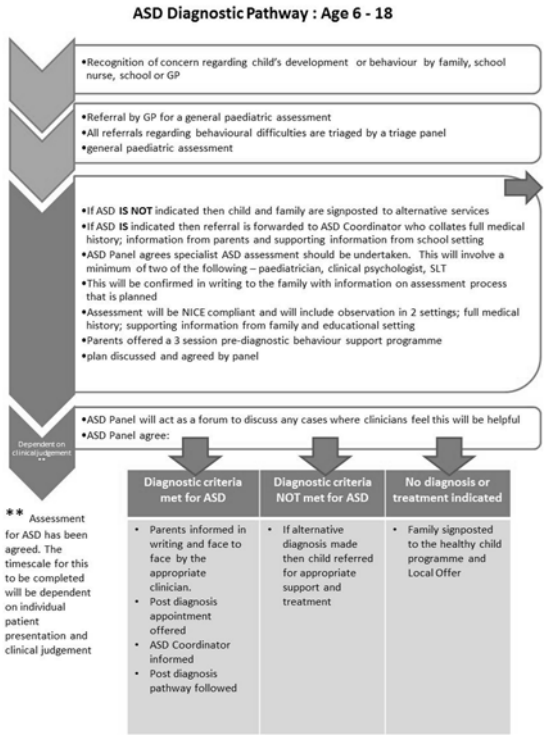
Since the publication of the Warnock report in 1978 and the Salamanca Statement in 1994, both advocating the inclusion of children with Special Educational Needs (SEN) into mainstream schools, legislation has strived to encompass and educate all professionals involved with these children. The publication and subsequent revisions of the SEN Code of Practice (1994, 2001, 2014) and the introduction of the National teaching standards (2012) illustrate this. However, intertwined throughout the constantly developing legislation and policy is the importance of early identification of need and the fundamental necessity of professionals to be working together, collaboratively and cooperatively. An intrinsic requirement also incorporated into the 2014 Children and Families Act in Parliament, noting the duties of professionals to work together and promote interaction (Sections: 23, 25, 28 & 31 Ch. 6, 2014). The shared goal; "achieving education for all" (p9: 2, Salamanca, 1994).

Where there are difficulties, learning will not improve without support (Green et al., 2008). When needs are not met, the impact hinders learning and cognition, in addition to having a pervasive and significant effect on the emotional wellbeing of children and young people (Gagnon-Roy 2016) resulting in social frustration, unmet potential and perpetual anxiety. In actuality, a plethora of evidence and statistics show the real impact when support and collaboration do not occur, where needs are missed and where teaching and healthcare is uninformed and not targeted. Examples of this are illustrated in the Coates Review (2016) which stated that approximately one in three people in prison potentially have a learning difficulty or disability: many of whom had not had their needs identified before entering justice settings. Whilst one in ten children aged 5–16 has a diagnosable problem, most get no support (Independent Mental Health Taskforce, 2016) and children wait years for a diagnosis (Fridman et al.,2017). Moreover, the Department of Health statistics indicate that only 1.9% of 5-17 year olds have a diagnosed learning disability; not the 10% prevalence in

research. Pupils referred to Pupil Referral Units frequently have unsupported communication or educational difficulties (Quine, 2015), and "children with special educational needs are five times more likely to be excluded from state-funded schools than those without" (Ofsted, 2018). Thus, the argument put forward by Warnock (p. 668, 1979), is still true today, "that only by making a tremendous effort to build up a structure of cooperation can the future of children with special needs be improved."

In order to create seamless pathways when identifying neurodiversity, it is crucial that both the medical sector and education sector work in harmony. Using the UK as an illustrative example, a multidisciplinary approach is advocated by NICE guidelines (National Institute for Health and Care Excellence) e.g. CG128: 1.1.3 (www.NICE.org.uk, 2017). In England pathways have been created for local NHS trusts to diagnose Autism and ADHD, such as the Norfolk-ASD-Pathway (2016) (figure 1) and the ADHD Pathway for St. George's Hospital (2016) (figure 2), where holistic assessments are recommended. In such guidelines and pathways, the pre-referral commences with the recognition of concern by the school and/or General Practitioner (GP), see figure 1 & 2.

Figure 1. Norfolk ASD Pathway, 2016 (NB. ASD is used as Autism described as a Disorder rather than, ASC describing Autism as a condition.



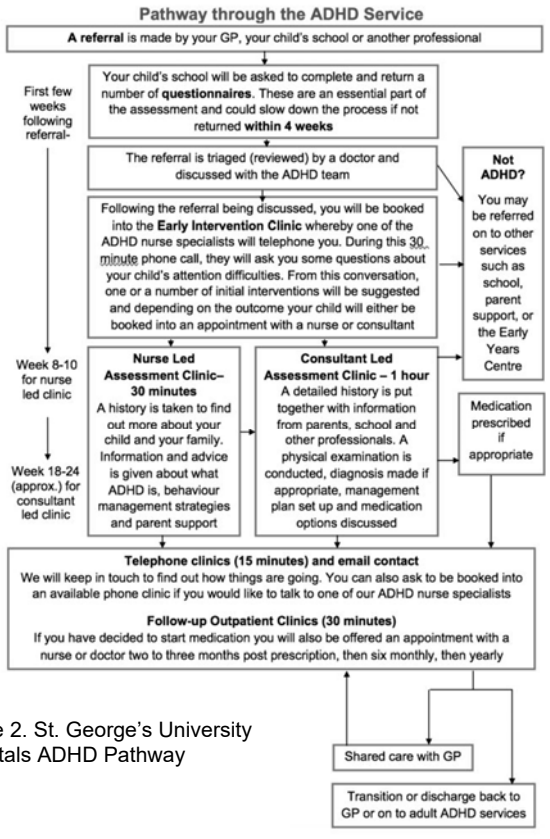


Figure 2. St. George's University Hospitals ADHD Pathway

Henceforth the importance of these two bodies to work together flawlessly. Few studies have looked directly at whether the professionals expected to support and identify children with neurodiversities at the beginning of a 'pathway' have a sufficient understanding of what they are or the full impact and consequences if unsupported, both physically and mentally (Kirby et al, 2005; Tatlow-Golden, et al., 2016; Uniqwe, et al., 2017). Therefore, the aims of this study were to explore: a) cross-professional understanding of significant neurodiversities that can severely affect children's learning and emotional well-being; b) the differences in recommended support for the neurodiversities between the education and medical sector; and c) pathway efficiency.

Methodology

The present study sought to gather evidence in relation to practitioner knowledge of a number of notable neurodiversities known to impact both learning and emotional well-being in children. Conditions were selected based on higher prevalence groups within the population: Dyslexia between 4-20% (Knight, 2018); ADHD between 5.9 and 7.1% (Willcutt, 2012); Dyspraxia between 5-18% (Lingham, 2009; Dixon & Addy, 2013); and an Autism Spectrum Condition approximately 1% (Baird, et al, 2006). For the avoidance of doubt, Autism Spectrum Conditions are referred to as ASC, and Dyspraxia as Developmental Coordination Disorder (DCD). In order to explore these neurodiversities, a semi-structured questionnaire was distributed impromptu at various training events, for four professional groupings: teaching staff, Special Educational Needs Coordinators (SENCOs), GPs and Paediatricians. A participant sample reflective of a child's pathway through the educational and medical sector, where interactions between the groups are imperative in supporting each child to fulfil their potential. The questionnaires were returned by 189 respondents and the return rate ranged from 56%-100% for education staff, 0%-30% for GPs and 0%-90% for Paediatricians. Respondents were located across a wide area in England including Leicestershire, Warwickshire, Northamptonshire, the West Midlands and London. Respondent demographics are presented in table 1. The questionnaire included questions based on determining the practitioners' understanding of what the pre-determined 'conditions' were and how to support them and were

presented using the related pairs, ‘What is …?’ and ‘How can we support children with…?’ Questionnaires were distributed between September 2018 and July 2019.

Table 1

Professional	Number	Mean age (years)	Mean experience (years)
Teaching Assistant	11	42.2	12.8
Teacher	58	38.4	13.8
Trainee Teacher	18	21.2	2.3
SENCo	30	38.9	14.4
GP	44	38.9	14.7
Paediatrician	28	36.4	8.9

(NB. Some trainee teachers had volunteered in schools or been teaching assistants before training as a teacher)

Analysis

Thematic Analysis:

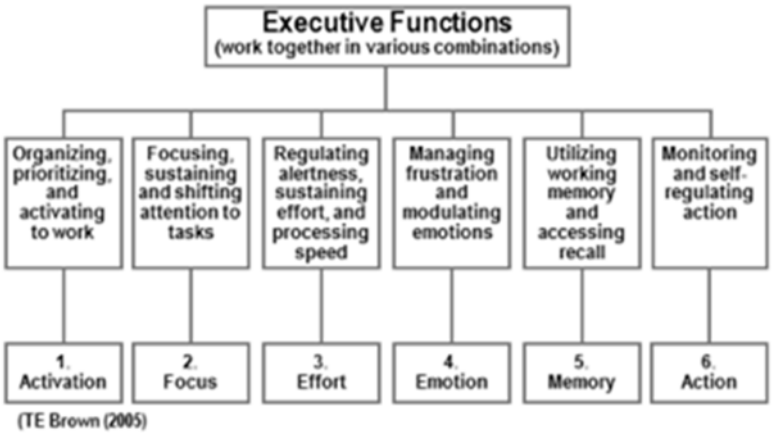
All handwritten questionnaires were digitally transcribed by the first author. Following transcription, data was analysed by the author using the six steps from the inductive thematic analysis procedure described in Braun & Clarke (2006). An inductive approach was taken as the paired question responses were expected to be unambiguous in nature, attributable to both the symptomology and available support for the chosen neurodiversities. First data was arranged into professions i.e. GPs and SENCos, and then read thoroughly in order to ensure familiarity with the depth and breadth of the respondents’ answers. This repetitive reading enabled patterns in the data to be established and a large list of potential themes was created. Colour coding was then used to match each question response to a theme, add further additional themes where necessary and record outliers separately. Phase three re-focussed the themes into larger over-arching themes by detailed analysis and mind-mapping, for example merging answers in one code that implied social communication difficulties with those that discussed difficulties with non-verbal language into one

over-arching theme, ‘social communication and interaction’. Phase four then reviewed themes by reading all the responders’ comments under each theme, this allowed each theme to be ‘defined and refined’ before a final thematic map was completed for the ‘What is….? and ‘How would you support….? conditions. Finally, a second doctorial researcher repeated the above exercise from ‘phase four’, thereby assessing and ensuring continuity and validity throughout.

Data Analysis:

Following the thematic analysis the paired questions were subdivided into two conditions: ‘What is…..?’ and the ‘How would you support…..?. Overarching themes from the first condition, ‘What is….?’, were cross-referenced with standard diagnostic criteria from two sources, the DSM-5 (APA, 2013) and the ICD-11 (WHO, 2019). Themes for each neurodevelopmental condition were then further cross-referenced with additional notable sources: the Autism Education Trust (Wittemeyer, et al., 2012); an impromptu response given from a specialist in Autism Conditions, Professor Karen Guldberg; research supporting the strong correlation between ADHD and executive functioning difficulties (See figure 3), (such as Silverstein, et al., 2018; Brown, 2008); the ‘Dyspraxia UK’ website (Dyspraxia UK, Diagnostic Criteria); Dixon & Addy Dyspraxia book (2013); and The Department for Education approved definition of dyslexia is taken from the Rose review (2009).

Figure 3 The Executive functioning difficulties associated with ADHD



The following key qualifiers and information was ascertained:

- Autism Spectrum Condition (ASC): persistent deficits in social communication and interaction, restricted and repetitive patterns of behaviour and atypical reactivity to sensory input
- Attention Deficit Hyperactivity Disorder (ADHD): Subtype I ADHD pre-dominantly inattentive: a persistent pattern of inattention, such as poor registration and inability to follow instruction; ADHD Subtype II pre-dominantly hyperactive: hyperactivity such as fidgeting, difficulties in staying seated, often 'on the go', talking excessively and impulsive reactions; ADHD Combined Subtype I and II; and the inclusion of specific symptoms to illustrate the association with executive functioning difficulties such as disorganisation, emotional regulation, errors in work and difficulty in sustaining effort.
- Developmental Coordination Disorder (DCD): where motor performance is substantially below expected levels. Examples given: coordination problems, poor balance, clumsiness; and marked delays in achieving developmental motor milestones. However, the effects of DCD are more pervasive and can also include difficulties with: planning and organising; processing speed; sensory responsivity; overactivity and distractibility; extreme levels of motor activity; difficulty with mathematics; and trouble understanding non-verbal body language (Dyspraxia UK, Diagnostic Criteria; Dixon & Addy, 2013). Moreover, the difficulties faced by children with the condition also impact greatly on social interaction and participation (Gagnon-Roy et al., 2016; Cassidy, et al., 2016).
- Dyslexia: a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling. Characteristic features of dyslexia are difficulties in phonological awareness, verbal memory and verbal processing speed (Rose, 2009).

Participants' recorded presentation of each neurodiversity (ASC, ADHD, DCD and Dyslexia) were then analysed for the key terminology given in the secondary sources above and scored according to the number of symptoms identified. Percentages were taken for the number of symptoms noted per neurodiversity, per profession.

Charting Themes for Condition 2 How would you support…?:

The overarching themes of the second condition, ‘How would you support…?’, evolved from the thematic analysis (see above) were charted, in order to illustrate how the differing professions would support the neurodiversities. A chi square test (x^2) was then applied to the ASC and Dyslexia data in order to

measure the significance of any relationship between the support given and the symptom recognised.

Results:

Thematic Analysis:

Table 2 illustrates the results for the thematic analysis for the first condition that asked participants to define the presentation and symptoms of the four neurodiversities i.e. What is….?. It also provides a visual aid to the type of responses given and how the main over-arching themes emerged.

Table 2 Domain ontology for neurodiversity symptomology (Condition 1: What is….?)

Thematic Area	First-Order Theme	Examples of Comments
Autism Spectrum Condition	Social Interaction Difficulties	When someone's difficulties in communication or interaction affects their daily life Find people hard to read, such as facial expressions
	Behavioural Rigidity	Often like repetitive actions Have a rigid way of thinking
	Sensory Difficulties	A condition that affects one's processing of senses A disorder affecting sensation
Attention Deficit Hyperactivity Disorder (ADHD)	Inattention	Difficulty in not being distracted Having problems focussing / concentrating
	Overactive	Find it hard to sit still and are very active Hyperactive
	Disorganised	Some who finds it difficult to organise themselves Organisation difficulties
	Impulsivity	Impulsive behaviours An in ability to control impulses
	Behavioural Difficulties	Behaviour problems Behavioural disorder
Developmental Coordination Disorder (DCD) / Dyspraxia	Coordination	A lack of control over motor skills and body movement Difficulties with movement and coordination
	Balance	Poor coordination and balance Problems with balance
	Spatial Awareness	Poor perception as to where their body is Struggle with spatial awareness
	Organisation	A child that struggles to organise themselves Poor organisational skills
	Processing	Can affect the ability to process lots of information Difficulties with processing
	Clumsy	Clumsy child Clumsiness
	Speech Difficulties	A condition that affects speech Struggle to form words
	Inattention	Focussing attention on one thing can be demanding Can affect attention
	Not Sure	? Don't know
Dyslexia	Reading Difficulties	An inability to read A barrier to reading
	Writing Difficulties	This affects writing Difficulty writing
	Spelling Difficulties	Problems with spelling Affects spellings and use of letters
	Visual Difficulties	Words jump about on the page Difficulty understanding text, visual difficulties
	Phonics Difficulties	Weak phonological skills A difficulty correlating relationships between sounds (phonics)
	Processing Speed	Processing difficulties The person has difficulties processing what is written
	Organisation	Difficulty with time / organisation and space Lifelong condition that affects reading, writing and organisation
	Language Difficulties	A problem with language A condition that affects an individual's language skills

A number of outliers were recorded for DCD, qualified as such by answers given less than five times. Despite limited reference, these are worthy of reporting in order to demonstrate the limited knowledge and awareness of DCD: “Like Dyslexia but with numbers”, “?Numbers”, “Difficulty in comprehension”, “I have not come across this in my 18 years of teaching”, “Poor ability in education”. Additionally, some answers for ASC and ADHD within both the medical and educational sector were over generalised: ‘a spectrum of Autism’, ‘Asperger’s’, ‘Autism’, ‘autism is different in all children’, and ‘children are born with various degrees of manifestation’. One medical response reported Autism as being ‘a deficit in attention with hyperactivity’. Dyslexia had one outlier where a GP respondent wrote “I odnt nkow”.

Data Analysis; Condition 1 What is….?

When defining the four neurodiversities, ASC, ADHD, DCD and Dyslexia, a number of participants’ responses mirrored the qualifiers considered to be key terminology in the methodology section. See Table 3. More specifically, ASC results showed that 67% of the professionals questioned were able to identify social communication difficulties as a symptom of ASC. However, only 20% were able to relate autism to behavioural rigidity and 26% with sensory processing difficulties. This means that 33% of professionals were unable to identify social interaction as a key symptom, with 80% being unable to identify behavioural rigidity and 74% unable to identify sensory responsivity. SENCOs and paediatricians identified a greater number of symptoms associated with autism. Whereas trainee teachers and GPs identified the least.

ADHD results showed that 81% of the professionals questioned identified inattention as a symptom of ADHD, whilst 52% and 53% respectively related ADHD to overactivity and impulsivity. 6% were more specific with symptomology, associating disorganisation with ADHD and 16% noted behavioural difficulties. Moreover, many professionals did not expand on the terminology of inattention and overactivity, essentially restating the name of the condition. None of the

professionals specified executive functioning difficulties and none of the professionals intimated the three subtypes that ADHD can present as.

Themed results for DCD show that 70% of the professionals questioned identified coordination difficulties as a key symptom of DCD, whilst 12% noted challenges with spatial awareness. Only 9% of educational responses and 2% of medical responses moved beyond the coordination definition and included functional difficulties such as those given by 'Dyspraxia UK', i.e. organisation difficulties and problems with attention. Additionally, some professionals were aware of the impact that DCD can have on speech, where speed, accuracy and timing of movement sequences can impact on speech production (Barry,1993). However, a large number of professionals (21%) viewed children with DCD / Dyspraxia as being clumsy. 10% of the professionals questioned were not sure what DCD was.

For Dyslexia, responses show that 65% of the professionals questioned identified reading as a difficulty in dyslexia, with 33% and 28% identifying writing and spelling difficulties respectively, with one in four professionals reporting visual difficulties in dyslexia. Other themes that were supported included phonetic, processing, organisational and language difficulties. Note 35% of educational professionals did not associate difficulties with literacy with dyslexia.

Table 3 Percentage of Themed Symptoms Identified by Professionals

	% of Symptomology Identified	SENCO (30)	Trainee Teacher (18)	Teaching Assistant (11)	Professional Teacher (58)	General Practitioner (44)	Paediatrician (28)	TOTAL (n=189)
ASC	Social Communication Difficulties	83	50	64	64	57	86	67
	Behavioural Rigidity	20	0	27	22	18	29	20
	Sensory Difficulties	53	22	0	26	16	25	26
ADHD	Inattention	73	67	64	91	82	86	81
	Overactive	43	56	73	48	52	61	52
	Disorganised	23	0	0	9	0	0	6
	Impulsivity	47	11	0	28	18	46	53
	Behavioural Difficulties	13	0	36	21	20	7	16
DCD	Coordination	80	39	91	83	55	68	70
	Balance	20	11	0	10	7	0	9
	Spatial Awareness	17	11	0	14	9	14	12
	Organisation	23	0	9	9	2	4	8
	Processing	13	6	9	2	0	11	5
	Clumsy	17	22	36	24	25	7	21
	Speech Difficulties	7	0	0	3	2	0	3
	Inattention	10	0	0	7	0	0	4
	Not Sure	13	6	64	0	15	0	10
Dyslexia	Reading Difficulties	77	61	73	64	61	57	65
	Writing Difficulties	33	33	55	34	32	21	33
	Spelling Difficulties	33	39	9	43	14	14	28
	Visual Difficulties	20	28	27	43	9	4	23
	Phonics Difficulties	20	6	18	14	0	0	9
	Processing Speed	33	6	9	17	9	14	16
	Organisation	7	0	0	5	2	0	3
	Language Difficulties	0	0	0	0	18	4	5

Condition 2 Results; How would you support….?

When considering support, the coded themes illustrated how the different sectors varied greatly in their responses (see figure 4) with the teaching sector predominantly recommending more specific support associated with individual presentation and the medical sector being more generalised in their recommendations. Examples of specific support recommended by educators include: timetables and ear defenders for ASC; motor breaks, fidget toys and relaxation techniques for ADHD;

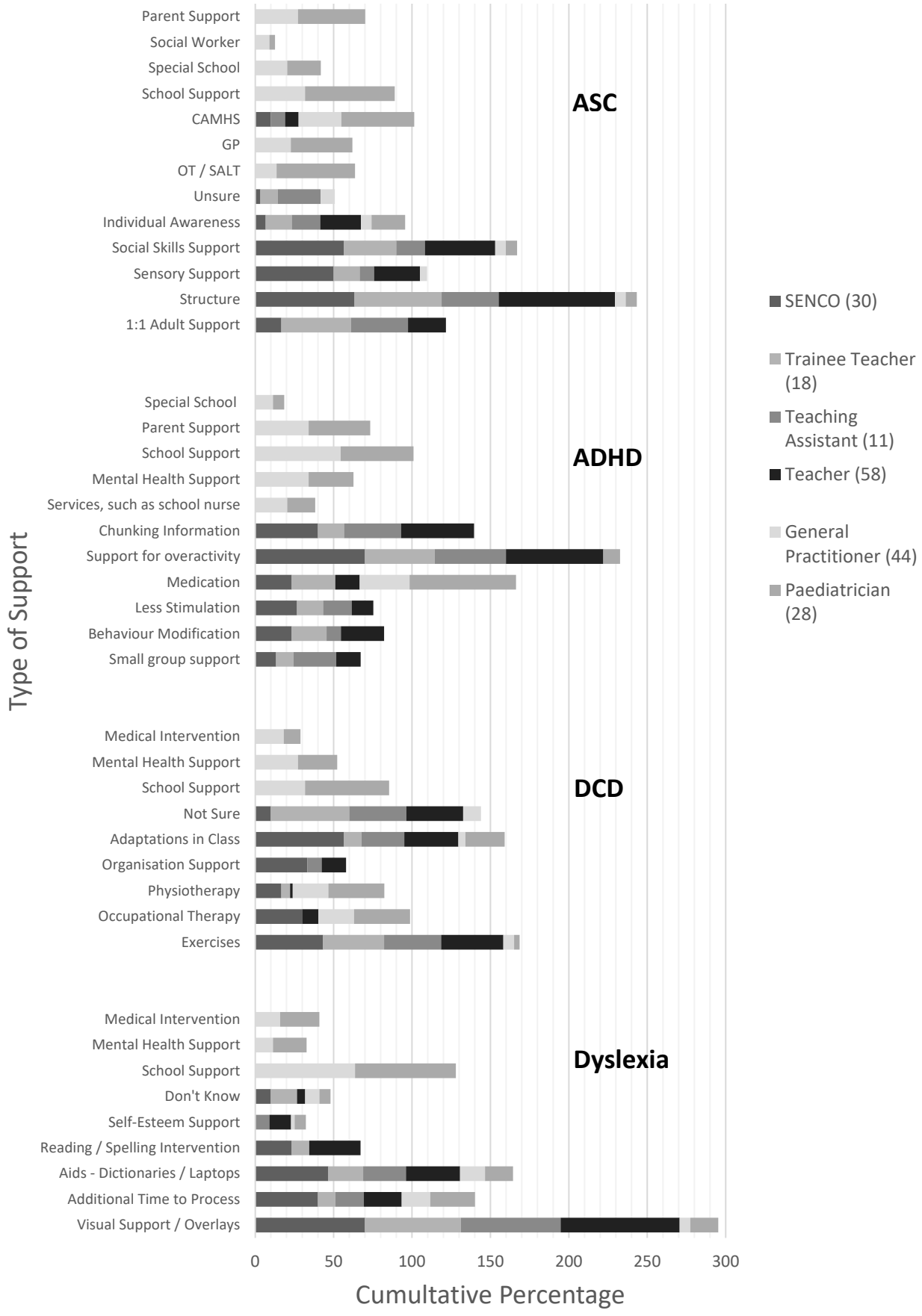
exercises and adaptations in the classroom for DCD i.e. ‘springy scissors’ and ‘pencil grips’, and for Dyslexia visual overlays, additional time, specialised dictionaries, laptops, and reading / spelling interventions. School, medical and mental health support from CAMHS were a general theme given by the medical sector across all four neurodiversities, with medical support consisting of school nurse, GPs, and paediatricians, whilst a greater understanding from parents, input from social

workers and special schools were also advised for ASC and ADHD. It should be noted that 22% of all educational and medical professionals were not sure how to support a dyspraxic (DCD) child. The term ‘exercise’ was also frequently used with some examples such as ‘throwing and catching’ or ‘cutting’.

More specifically, within the education sector, when exploring the relationship between intervention and symptomology in ASC there was a significant association between the recognition of social communication and interaction difficulties with social skill intervention X^2 (1) = 19.48, p < .000 with the odds of receiving such intervention being 7.8 times higher than if social difficulties were not recognised. A similar pattern can be found with receiving sensory support (such as ear defenders) when sensory difficulties are recognised X^2 (1) = 6.49 p = .016, with an odds ratio of 3.5. However, there is no significant relationship to receiving support for behavioural rigidity and inflexibility, such as visual timetables and structured play (X^2 (1) = 2.70 p = .130), indicating that structure and routine are practiced with insufficient understanding as to why.

Additionally, when considering the support given for Dyslexia, despite there being a significant association between receiving reading support, such as phonics intervention, following the recognition of reading difficulties, X^2 (1) = 11.96, p < .000, the odds ratio of receiving visual overlays as opposed to reading support is still 1.92 times higher. Meaning that students with Dyslexia are nearly twice as likely to receive a visual overlay than specific support for their learning difficulty.

Figure 4. Percentage of Themed Support Suggested by Professionals



Discussion

The aims of this study were to explore: a) cross-professional understanding of significant neurodiversities that can severely affect children's learning and emotional well-being; b) the differences in recommended support for the neurodiversities between the education and medical sector; and c) pathway efficiency.

Cross-professional understanding of the significant neurodiversities ASC, ADHD, DCD and Dyslexia

Results from this study indicate that none of the four major neurodiversities experienced by children, and that impact greatly on learning and emotional well-being, are understood in their entirety by the education or medical sector. For ASC, despite there being four strands to identification: social communication, social interaction, behavioural rigidity and sensory responsivity, the only symptom recognised by both the education and medical sector with certainty is social communication and interaction, with behavioural rigidity and sensory responsivity being the least recognised and understood. With regard to ADHD, the three subtypes: ADHD predominantly inattentive; ADHD predominantly hyperactive; and ADHD combined (APA, 2013; WHO, 2018) were not reported and few professionals cited the strong association to executive functioning, a fundamental factor to learning (Silverstein, et al., 2018). DCD appeared to have the least awareness in both sectors with terminology such as 'clumsy' being widely used and 10% of professionals being unsure as to what the condition was. Moreover, no responses involved the recognition of sensory processing difficulties, such as proprioception (Cole, 2009) or an awareness of hypermobility, significantly associated with DCD (Jelsma, et al., 2013). Finally, with regards Dyslexia, 35% of educators did not associate dyslexia with literacy difficulties.

The differences in recommended support for the neurodiversities between sectors

This study demonstrates that classroom support for neurodevelopmental conditions is more likely to be given as a tangible adaptation, such as structured timetables and visuals in ASC, fidget tools in

ADHD, adaptive equipment in DCD, such as pencil grips and springy scissors and overlays in dyslexia. However, fundamentally, there does not appear to be an understanding as to why the given adaptations are therapeutic or helpful. Timetables and visuals are offered for ASC with little awareness of how sensory responsivity, rigidity and inflexibility generate anxiety in ASC. Fidget therapy is a more likely support for ADHD (39%) than support for inattention in the form of chunking (24%), a contradictory result when inattention, as a symptom, was acknowledged more widely. Exercises are offered for DCD with little reported understanding as to which exercises and how they can help, with limited regard to sensory processing difficulties or hypermobility; targeted exercises for this would need occupational therapy input. For Dyslexia, overlays are offered without optometry assessment and with limited intervention for literacy difficulties. Moreover, the use of overlays based on current research has been reviewed and debated as controversial (Uccula, et al., 2014). Thus, using such therapy should be carefully considered and supported by a behavioural optometrist.

Rather than specific support, results show that the medical sector are more likely to recommend a patchwork of service avenues when a child presents with a neurodevelopmental disorder, ranging from special schools, to school nurses, social workers, occupational therapists, paediatricians and CAMHS. Medical professionals are also likely to recommend school support.

Elevate pathway efficiency

When referring to diagnostic pathways for ASC and ADHD, the primary professionals at the start are teachers and GPs (see Figure 1 & 2). This is also duplicated in the Bath & North Somerset DCD Care pathway (2016, p6). Thus, teachers and GPs are crucial and their understanding of ASC, ADHD and DCD the determining factor. Yet, these results show that the majority of teachers only associate social communication difficulties with ASC. Such indicators can lead to a misidentification, or missed opportunities as a number of classroom difficulties can also present as social communication impairment, e.g. speech and language impairment, dyslexia, dyspraxia, attention deficit hyperactivity disorder and lower ability (Conti-Ramsden & Botting, 2004; Riddick,

2009; Cassidy, et al., 2016; Carpenter Rich, et al., 2009). Additionally, anxiety compounding symptomology such as behavioural rigidity and atypical sensory responsivity could be misunderstood as results show limited awareness of this symptom (South & Rodgers, 2017). Furthermore, if a child is suspected as having an ASC by the school and is referred to the GP to start the pathway, out of the professionals questioned, GPs identified the least number of symptoms related with ASC, in addition to recommending sporadic support involving a number of services. It would appear that the ASC pathway falls at the first hurdle.

When analysing the results for attention deficit hyperactivity, it is re-assuring to know that a number of professionals noted both inattention and overactivity as a symptom of ADHD. However, one in five teachers and GPs believed that ADHD is disruptive behaviour. Moreover, GPs appeared to have little clarity on the route to support a child showing ADHD symptomology. It would appear that the ADHD pathway falls at the first hurdle.

The UK's medical sector do not consider DCD as a diagnosis unless a child falls below the 5th percentile for coordination (Criterion A DSM-5, APA, 2013), such a score is considered significant and without reaching this threshold a child is often discharged with a question as to why they were referred (Dunford, et al., 2003). Yet, a score at the 15th percentile, in line with one standard deviation below the mean, in different countries such as Canada, is considered to be diagnostic of DCD (DCD Advocacy Toolkit, 2018). Moreover, additional sensory, cognitive and social difficulties associated with DCD are not considered or measured at a diagnostic level in the UK, as the Movement ABC is considered to be the most suitable test for assessing for DCD (Dunford, et al., 2003). However, coordination difficulties that do or do not meet the 5th percentile criteria still warrant understanding and support. This study's results indicate an inadequate knowledge of DCD and how to support it, no matter what percentile.

In summary, this paper identifies an inexcusable gap in awareness of neurodiversity by both the medical and educational sectors; breaking the pathway before it begins, leaving parents and children

not knowing where to turn and in desperate need of support. A single appointment with a GP has the capacity to change the child's life forever, impacting on not only the child's education and well-being, but also the family make-up (Hartley, et al., 2010). As described by the Children and Young People's Mental Health Coalition (Lavis, et al., 2019, p4), "families suffer greatly from a lack of joined-up thinking between the sectors, resulting in them being 'ping-ponged' between school and healthcare, with no one taking responsibility".

Recommendations

This study's results show that "Awareness of a term is one thing and knowledge of its meaning quite another" Peters, et al., (2001, p407), with professionals only identifying finite elements of ASC, ADHD and DCD, and in some instances not being able to identify any symptomology at all. Consequently, a confusion of the correct route prevails, born out of uncertainty with a number of services appearing to be indiscriminately referenced. Therefore, this study recommends the following actions:

- Compulsory training for GPs and teachers in neurodiversity
- A greater understanding and support for the *spectrum* of difficulties faced, for example the autism spectrum and the 6th percentile 'DCD' child
- More paediatric occupational therapists linked to academies
- More easy access, cost efficient evidence-based interventions disseminated effectively to educators
- Accountability for *all* those involved in the diagnostic pathway

The price of conjecture…when needs are not met, significantly affects learning and cognition, and impacts needlessly on the emotional wellbeing of a child, resulting in possible exclusion (Ofsted, 2018), a life of crime (Coates, 2016), and considerable mental health challenges. Previous studies Kirby, et al, (2005), Tatlow-Golden, et al., (2016) and Uniqwe, et al., (2017) all highlighted

concerns with regard to both the knowledge and attitudes of the gatekeepers to the neurodiversity pathways and failings still remain. Henceforth, the importance of the education and medical sector to work together flawlessly has never been so great, the time is *now…* to achieve the ultimate goal set forty years ago; education for all.

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