

## Rationale and evidence for taking a person-centred approach to screening in prison

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## Introduction

There is increasing recognition of Learning Difficulties and Disabilities (LDDs) in the prison context. LDDs is a UK term which generally includes the following conditions: Dyslexia, Dyscalculia, Developmental Coordination Disorder (DCD, aka Dyspraxia) and Intellectual Disability (ID, aka Learning Disability in the UK).

The need to identify and support people in prison with LDDs has been explored by the *No One Knows* series of reports (Jacobson, 2008; Loucks, 2007a, 2007b; Loucks and Talbot, 2007; Talbot, 2007, 2008; Talbot and Riley, 2007), the *Bradley Report* (Bradley, 2009) and, more recently, the *Coates Review* (Coates, 2016). These have highlighted that LDDs are common among people in prison yet are frequently unidentified. Lack of identification may increase the likelihood that individuals are: unable to cope with prison routines; unable to access rehabilitative courses; victimised within prison; and at greater risk of reoffending

(Bradley, 2009; Coates, 2016; Jacobson, 2008; Loucks, 2007a, 2007b; Loucks and Talbot, 2007; Talbot, 2007, 2008; Talbot and Riley, 2007).

Other common conditions, such as Attention-Deficit/Hyperactivity Disorder (ADHD, including ADD), Autism Spectrum Disorder (ASD, an umbrella term including Autism, Asperger syndrome), Developmental Language Disorder (DLD, including speech and language difficulties) and Tic Disorders (including Tourette's Syndrome and Chronic Tic Disorder), also have a considerable impact on individuals' vulnerability within prison (Allely, 2015; Bryan et al., 2007; Gudjonsson et al., 2007; Young et al., 2009). Following DSM-5 criteria (APA, 2013), these conditions, along with those covered by the term LDDs, are grouped under the term Neurodevelopmental Disorders (NDDs). Following advocacy by people with these conditions, we refer to NDDs as Neurodiversity/Neurodiverse conditions (see Glossary).

## Prevalence of Neurodiversity

Neurodiversity is common within the general population. For example, among UK children estimates of the diagnosed prevalence of ADHD range from 0.5-2.2% whereas for Dyslexia these range from 2.3-6.2% (Cleaton and Kirby, 2018). The diagnosed prevalence of Neurodiverse conditions among children and young people in the UK ranges from 0.5-2.2% for ADHD to 2.3-6.2% for Dyslexia (Cleaton and Kirby, 2018).

Much higher prevalence rates are found within populations of vulnerable young people particularly juvenile prison populations (Hughes et al., 2012). For example, UK studies report ADHD rates ranging from 10.8% among all young people in Liverpool Youth Offending Services (Lewis and Scott-Samuel, 2013) to 74.2% of those serving custodial sentences for four or more offences in a regional secure training centre (Rayner et al., 2005).

The prevalence of LDDs in adult prison populations has been between estimated to be approximately 33% (Coates, 2016). However, there is paucity of high-quality prevalence data (Coates, 2016). Also, as previously noted, counts of

LDDs do not generally include individuals with ADHD, ASD, DLD or Tic Disorders and thus are underestimates of the prevalence of Neurodiversity.

## Female populations

Whilst comparatively few studies have focused on female prison populations, Neurodiverse conditions appear to be highly prevalent in this population, too. For example, 59.4% of a sample of 69 women in Newhall Secure Female Prison, Yorkshire met diagnostic criteria for adult ADHD when screened (Farooq et al., 2016). Among a random sample of 60 females in Her Majesty's Prison (HMP) Styal, 8.3% had ID (IQ<70) and a further 31.6% had borderline ID (IQ 70-79) when screened (Mottram, 2007).

Females in prison also have low literacy and numeracy levels, some of which may be attributable to Dyslexia and Dyscalculia, respectively. For example, 47% of women entering prison in England in 2014/15 did not have Level 1 literacy skills and 77% did not have Level 1 numeracy skills (Creese, 2016). These are skills levels expected of typically-developing 11-year-old children.

It should be noted that the majority of the women in these studies had not had their needs identified **before** they were screened for research, indicating these women's diagnoses were highly likely to have been missed before and after they entered prison.

## Defining Neurodiverse conditions

One of the key issues regarding Neurodiversity is that diagnosis is made on the basis of a set of symptoms – using, for example, include DSM-5 (APA, 2013) and ICD-10 (WHO, 1993) international sets of criteria. However, other factors, such as Adverse Childhood Experiences (ACEs, including childhood abuse) and head injuries (potentially causing Traumatic Brain Injury (TBI)) may also result in attention, concentration, social, memory, cognition and/or other difficulties that can mimic Neurodiverse conditions (Babikian et al., 2015; Chang et al., 2018; Van Der Kolk, 2005; Yang et al., 2016).

Neurodiverse conditions, TBI and ACEs are also highly co-occurrent (Cleaton and Kirby, 2018) and symptoms of one may be misdiagnosed as another (e.g. Bishop et al., 2008).

This complexity is particularly relevant in a prison context, where many individuals may have a history of head injury (Hughes et al., 2012), been a victim of childhood abuse (McDaniels-Wilson and Belknap, 2008; Williams, Papadopoulou, et al., 2012) and/or a victim of domestic violence (McDaniels-Wilson and Belknap, 2008; Prison Reform

Trust, 2017) as well as having one or more LDDs.

Providing accurate, appropriate and targeted support requires comprehensive and holistic assessment. This must include consideration of past history of brain injury and other adversity, otherwise misdiagnosis may result.

## **Lack of identification of Neurodiverse conditions**

As previously mentioned, many Neurodiverse people fail to have their Neurodiverse condition(s) diagnosed. Lack of identification may be attributable to the route to diagnosis. There are various routes to gaining a diagnosis of a Neurodiverse condition, which can be inconsistent and difficult to access (e.g. Jones et al., 2014). This is particularly true of individuals with multiple Neurodiverse conditions (Brett et al., 2016; Kentrou et al., 2018) and individuals with co-occurring Neurodiverse and mental health condition(s) (Barkley and Brown, 2014; Takara et al., 2015), both of which may apply in the prison context.

### **Missed diagnoses**

There are many reasons why a person's Neurodiverse condition may have been missed and undiagnosed prior to entering prison. Parental engagement with health and educational services may have been limited while the person was in school, resulting in little or no access to screening or assessment processes (Astle and Bathelt, 2019; Hamed et al., 2015). Additionally, many people in prison may

have missed much of their education, for example through school exclusion, and some will also have moved around the system (e.g. as a result of being a Looked After Child and/or Young Person (LACYP)) (Jacobson et al., 2010; Oak Foundation, 2019). One or more of these factors may result in the person being less likely to have gained a diagnosis.

High levels of underdiagnosis may be related to the well-documented 'postcode lottery' that affects provision of diagnostic services in the UK (Lamb, 2018). The diagnosis an individual receives remains, in many cases, determined by the services provided by their local healthcare board (Ross, 2018), the knowledge and biases of their parents and of gatekeepers such as teachers and GPs (Miyasaka et al., 2018), the particular specialists that are seen (Astle and Bathelt, 2019) and the ability of the individual and/or their parents to access services (Keenan et al., 2010). In particular, some less well-known conditions, such as DCD and DLD, often fail to be considered and assessments for these may be particularly difficult to access (Missiuna et al., 2006).

## Misdiagnosis

Misdiagnosis is also a considerable issue affecting individuals with Neurodiverse conditions. For example, ADHD (Horton-Salway, 2011), ASD (Midence and O'Neill, 1999), DLD (Ripley and Yuill, 2005) and other Neurodiverse conditions are frequently misdiagnosed as 'bad behaviour'. In other cases, Neurodiversity may be misdiagnosed as another condition (e.g. Aggarwal and Angus, 2015). Confusion may also occur when history of head injury is not considered, as TBI can result in 'secondary' ADHD as well as symptoms that mimic ASD and ID (Babikian et al., 2015; Chang et al., 2018; Compton et al., 2017; Keenan et al., 2008; Max et al., 2005a, 2005b; Yang et al., 2016). In particular, some children may appear to 'recover' from their TBI(s), as the behavioural impact may not become apparent until adolescence (Tonks et al., 2017). In these cases, symptoms are infrequently correctly attributed to the TBI.

## Female populations

Females appear to be at particular risk of under- and misdiagnosis of Neurodiverse conditions, although so far this has only been investigated for ADHD (Nussbaum,

2012) and ASD (Loomes et al., 2017).

Females with ADHD more often have the predominantly inattentive type (Biederman et al., 2002; Gershon, 2002), which is usually associated with less disruptive and externally-obvious symptoms (APA, 2013). Females with ADHD are also less likely than males to exhibit physical aggression and other externalising behaviours (Rucklidge, 2010). Likewise, females with ASD generally present differently to males. They tend to have more age- and gender-typical restricted interests (Hiller et al., 2014) and often mimic peers' social interactions, although without necessarily understanding them (Dean et al., 2017; Lai et al., 2017). Additionally, females with ASD tend to have higher levels of social motivation (Sedgewick et al., 2016) and lower levels of repetitive behaviour (Harrop et al., 2015; Mandy et al., 2012; Van Wijngaarden-Cremers et al., 2014). These differences in presentation likely contribute to the under- and misdiagnosis of Neurodiverse females.

## **Potential impact of missed diagnoses and misdiagnosis**

Neurodiverse individuals typically experience cumulative adversity – increasing, accumulating negative experiences over time. This includes a range of poor psychosocial outcomes relating to offending behaviour, physical and mental health, education and employment (Cleaton and Kirby, 2018).

## **Offending behaviour, criminal exploitation and false confession**

The impact of having one or more Neurodiverse conditions, with or without TBI, may render individuals more vulnerable to offending behaviour, being coerced/manipulated into offending behaviour and/or impulsively or falsely making a confession. For example, it is recognised that individuals with ASD are less risk-aware and less socially protected, even compared with individuals with Down's Syndrome (Fisher et al., 2013). Children with ASD are significantly more socially vulnerable than typically developing children (Sofronoff et al., 2011) and this extends into adulthood (Jawaid et al., 2012).

People with ADHD are more likely to commit reactive and/or opportunistic offences, more likely to be apprehended and less likely to appreciate the seriousness of their actions (Harpin and Young, 2012). Additionally, people with ADHD may not trust their memory during police interrogation, resulting in responses that appear evasive (Gudjonsson et al., 2007). This is concerning, as evasive answers are often used to differentiate truth-tellers from liars and thus differentiate innocents from guilty suspects (Masip et al., 2018). Additionally, people with ADHD may also be more motivated to comply with requests and avoid conflict, resulting in greater rates of false confession (Gudjonsson et al., 2008, 2012a).

However, the association between criminalisation and Neurodiversity extends beyond ADHD. People with ASD are at increased risk of being manipulated or exploited by others in order to commit crimes, due to their social vulnerability and elevated levels of compliance (Payne, 2017). One survey found 37% of people with ASD had been forced or manipulated to do something that they did not want to by someone they considered a friend – this included criminal behaviours

(National Autistic Society, 2014). Recent criminal trends have also targeted Neurodiverse people. For example, County Lines drug supply chains often exploit people with learning and developmental disorders (NCA, 2019). In particular, individuals with ID may be targeted for ‘cuckooing’, a process where drug dealers take over and sell from a vulnerable victim’s residence which often involves intimidation and violence (Spicer et al., 2019).

## **Mental health and Neurodiverse conditions**

Neurodiverse people are at increased risk of mental health difficulties (Cleaton and Kirby, 2018). These include common conditions such as Anxiety Disorders and Depression, but also a range of other conditions such as Eating Disorders, Obsessive-Compulsive Disorder, Personality Disorders and Schizophrenia (Cleaton and Kirby, 2018).

Neurodiverse conditions are also associated with elevated risk of suicide. Suicidal ideation, suicide attempts and suicide completion are all more frequent in individuals with ADHD (Impey and Heun, 2012) and individuals with ASD are

7.6 times as likely to die by suicide as general population controls (Hirvikoski et al., 2016). Individuals with Dyslexia and/or Dyscalculia are 2.2 times as likely as controls to have ever attempted suicide (Fuller-Thomson et al., 2018). As well as suicide attempts, Dyslexia is also associated with self-harm and suicidal ideation (Alexander-Passe, 2016), as is ID (Giannini et al., 2010).

This association between Neurodiversity and poor mental health has profound implications for the support and management of people in prison, particularly females. There is no reliable data regarding the number of people in UK prison who have mental health conditions – the most recent figure dates from 1998 when the prison population was significantly smaller and awareness and recognition of mental health was much less widespread (NAO, 2017). However, in the general UK population, 1 in 6 people have a depressive or anxiety disorder and approximately 1 in 4 have any mental health condition, 6.7% have ever attempted suicide and 7.3% have ever self-harmed (McManus et al., 2009, 2016).

Self-harm and suicide is a considerable and growing issue in prison

populations, particularly in the female estate (Bartlett and Hollins, 2018). From September 2017 to September 2018, there were 92 self-inflicted deaths as well as 52,814 self-harm incidents committed by at least 12,467 self-harming individuals in English and Welsh prisons (MoJ, 2019). Between 2008 and 2018, the total number of prisoners in England and Wales decreased by 0.2%<sup>1</sup> (MoJ, 2009, 2018) but the rate of self-inflicted deaths in prison increased by 47.6%<sup>2</sup>, the rate of self-harm incidents increased by 230.0%<sup>3</sup> and the number of prisoners who self-harmed increased by 182.9%<sup>4</sup> (MoJ, 2013, 2019).

It is also possible that self-harm incidents in prison may also be becoming more physically harmful: in 2008, 5.5%<sup>5</sup> of self-harm incidents in prisons in England and Wales required hospitalisation but by the September 2017 to September 2018 period this had increased to 6.0%<sup>6</sup> (MoJ, 2013, 2019). Hospitalisation rates can be affected not only by the severity of injury

but also by the type of injury and the availability of medical services in the prison in question. Thus, they are not a clear marker of how physically dangerous self-harm incidents are. However, this issue is worth further consideration.

## **Substance misuse and Neurodiverse conditions**

Many Neurodiverse conditions are also associated with increased risk of substance use disorders (Cleaton and Kirby, 2018). Individuals with ADHD (Capusan et al., 2019; Flory and Lynam, 2003; Knop et al., 2009; Sprafkin et al., 2007; Wilens et al., 2011) and ASD (Butwicka et al., 2017; Hofvander et al., 2009) are both more likely to have substance use disorders than individuals without these conditions. One study found that individuals with ASD were 3.9 times as likely to have a substance use disorder, 4.6 times as likely to have an

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<sup>1</sup> From 83,200 prisoners in 2008 to 83,005 prisoners in 2018.

<sup>2</sup> From 70 self-inflicted deaths in 2008 to 92 self-inflicted deaths between September 2017 to September 2018. Note: the latter may be an underestimate, as the number of deaths 'awaiting further information' prior to being classified has also increased markedly.

<sup>3</sup> From 24,119 reported self-harm incidents in 2008 to 52,814 reported self-harm incidents between September 2017 and September 2018.

<sup>4</sup> From 6,521 individuals recorded as having self-harmed in 2008 to 12,467 individuals recorded as having self-harmed between September 2017 and September 2018.

<sup>5</sup> Of 24,119 self-harm incidents in this year, 1,337 required hospitalisation.

<sup>6</sup> Of 52,814 self-harm incidents in this period, 3,179 required hospitalisation.

alcohol use disorder and 5.6 times as likely to have a drug use disorder compared to their relatives without ASD (Butwicka et al., 2017).

In the case of ADHD, substance misuse may be an attempt to self-medicate symptoms (Gudjonsson et al., 2012b). In this situation, treating the underlying ADHD can result in reduced substance misuse relapses, improved housing status and increased employment rates (Bihlar Muld et al., 2015). These factors are all associated with reduced recidivism (Hopkins, 2012; O'Hagan and Hardwick, 2017; Williams, Poyser, et al., 2012). In adolescents with ADHD who do not have substance use disorders, long-term, appropriately titrated pharmacotherapy is associated with significantly reduced rates of alcohol, marijuana and other drug use (Hammerness et al., 2017). This suggests that optimising the diagnosis and management of ADHD may assist in preventing, as well as treating, substance use disorders with potential consequences for offending behaviour.

As well as those with ADHD and/or ASD, individuals with ID are also at

increased risk of substance use disorders (Chapman and Wu, 2012; Van Duijvenbode and Vandernagel, 2019). This occurs despite the prevalence of alcohol and drug use being low in this population (Chapman and Wu, 2012). Within the population of people with ID, substance use, and thus also substance use disorders, were more common in those with mild (IQ 50-69) or borderline (IQ 70-85) ID than those with ID that is moderate, severe or profound (IQ<50) (Chapman and Wu, 2012). This is particularly relevant for prison populations. Recommendations state that individuals with ID should generally be diverted to forensic ID, medical or social care services rather than being sent to prison (Mansell Committee, 1993; Parkin et al., 2018; Reed, 1992). However, individuals with mild or borderline ID are often undiagnosed and/or do not disclose their diagnosis due to stigma (Wieland and Zitman, 2016). Thus, many may end up in prison. For example, one study of 140 randomly-sampled prisoners from HMP Liverpool found that, when screened with the WAIS<sup>7</sup>, 7.1% had mild or

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<sup>7</sup> Wechsler Adult Intelligence Scale, a widely-used IQ test for adults (Wechsler, 1999).

moderate ID and a further 23.6% had  
borderline ID (Hayes et al., 2007).

## Current diagnostic and support systems

### Categorical or dimensional?

The current diagnostic systems categorise individuals as having distinct, categorical, symptom-based disorders (ADHD, ASD, Dyslexia, etc.). However, a categorical approach like this ignores the fact that Neurodiverse conditions appear to be inter-related and often co-occur with each other (Kaplan et al., 2006, 1998, 2001) as well as other common, potentially confounding factors such as TBI and ACEs. They also co-occur commonly with mental health conditions as well such as anxiety and depression.

As well as commonly co-occurring, Neurodiverse conditions also commonly exist at a sub-threshold level. This is because they are based on dimensional, not categorical characteristics – similarly to other human characteristics such as height, any cut-off between ‘normal’ or ‘typical’ and ‘abnormal’, ‘disordered’ or ‘atypical’ is arbitrary. It is quite common, for example, for individuals with ADHD or DLD to have what is described as ‘Autistic tendencies’ – i.e. sub-threshold ASD (Conti-Ramsden et al., 2006; Green et al., 2015). Some individuals, despite having

functional difficulties in many areas (e.g. attention, social communication, reading, mathematics, memory), do not reach the diagnostic threshold for any of the particular conditions associated with these difficulties.

Diagnostic thresholds can result in inequitable provision of support and services, as they mean diagnosis functions as an all-or-nothing model. They also rarely consider other contributing factors such as TBI, abuse experiences and family disadvantage when diagnosing. The cumulative challenges experienced by someone with symptoms of multiple Neurodiverse conditions at a sub-threshold level may be functionally more impairing than the challenges experienced by someone who meets diagnostic criteria for, and has symptoms of, a single condition only. However, without a diagnosis, individuals with sub-threshold Neurodiverse conditions are rarely deemed eligible for educational or medical support even if their overall needs are potentially greater. In a prison context, this may be why so few people have received diagnosis – their pattern of needs doesn’t fit the current, categorical service model.

## Working in silos, focusing on LDDs

Another challenge facing Neurodiverse people is that services often operate in different professional silos, both within and outside the Justice System. For example, Dyslexia, Dyscalculia and, to some extent, DCD 'sit' in education, ADHD 'sits' in mental health services and ID may be separated from both of these into Learning Disability provision. However, this means that the individual's whole profile is rarely fully explored. Thus, the diagnoses people receive more often reflect the professionals that they have seen rather than the actual difficulties that they have (Astle and Bathelt, 2019).

Alternatively, a prison may run an effective LDD screening programme and service, without recognising that this fails to identify or support individuals with other, equally disabling conditions such as ADHD, ASD, DLD and TBI. However, these challenges may have at least as much impact as an LDD on individuals' overall health and wellbeing (Bihlar Muld et al., 2015), their ability to engage with rehabilitative courses and, potentially, their likelihood of reoffending (Chang et al., 2016; Ray and Richardson, 2017).

In other cases, screening programmes are run that cover many

conditions but only effectively identify those who have previously had a diagnosis and/or support. However, as previously described, many if not most Neurodiverse individuals either have no diagnoses or do not have diagnoses for *all* of the difficulties they have. Additionally, many people *with* diagnoses do not receive any support following diagnosis (e.g. Braiden et al., 2010; Crane et al., 2016; Jones et al., 2014). Therefore, if one weights a screening questionnaire too strongly towards questions about previous support, even people *with* diagnoses may not meet screening criteria.

Working in silos and focusing on particular conditions has severe consequences, as many if not most Neurodiverse individuals have more than one Neurodiverse condition (Cleaton and Kirby, 2018). Even if all of an individual's diagnoses are, eventually, made, working in silos means delays may be exacerbated. For example, if a child with DCD, ASD and Dyslexia was referred to a clinic because of social communication concerns, they would (after reaching the top of the, typically very long, waiting list) receive a diagnosis of ASD. However, they would then have to be referred to a motor disorders clinic, with another very long

waiting list, to be diagnosed with DCD. Later, perhaps after a few years at school, their reading difficulties might become increasingly obvious and they might be referred to an educational psychologist for a Dyslexia evaluation, with yet another long wait. By this point, years without adequate support could mean the child has developed nascent mental health difficulties, disaffection with school and/or a negative relationship with their parents. They may have spent years unable to access the curriculum, with long-term consequences for their educational and employment outcomes, as well as offending behaviour. In contrast, if they had initially been referred to a comprehensive Neurodiversity clinic, they could have been screened and monitored for all Neurodiverse conditions, resulting in timely diagnoses, earlier initiation of support and potentially better long-term outcomes.

Another issue associated with the separation of services into silos is that data-sharing is frequently inadequate, if it happens at all. Thus, for example, in a prison context the mental health team may not inform the substance abuse team about an individual's ADHD diagnosis, even though this may affect their

likelihood of drug relapse (Bihlar Muld et al., 2015). Equally, education may not inform either the mental health team or the substance abuse team about the individual's Dyslexia, resulting in the individual being given self-help materials that they cannot read. This lack of joined-up thinking and working has the potential to severely affect people in prison.

All of the above models (i.e. single-condition 'siloes' services, LDD-specific services and services that rely on prior diagnosis/support to identify service users) are highly unlikely to be sufficiently comprehensive, equitable or fair. They fail to recognise the reality of the conditions they purport to assess – i.e. that Neurodiverse conditions are complex and interrelated, they have high levels of symptom commonality with other conditions such as TBI and they are frequently undiagnosed and misdiagnosed. Thus, these systems risk leaving the most needy individuals unidentified and unsupported, consequently rendering them highly vulnerable to within-prison victimisation, unlikely to cope with prison routines, unlikely to be able to access rehabilitative courses and at greater risk of reoffending (Bradley, 2009; Coates, 2016; Jacobson,

2008; Loucks, 2007a, 2007b; Loucks and Talbot, 2007; Talbot, 2007, 2008; Talbot and Riley, 2007). Unfortunately, these appear to be the predominant service models, both within the community and within the Justice Sector.

### **Paper-based screening tools**

Around 50% of people in prisons in the UK are functionally illiterate, i.e. have a literacy level equivalent to age 11 years or lower, and 20% have a literacy level equivalent to age 9 years or lower (Creese, 2016). Other research has highlighted that 50% of the prison population are thought to have a language disorder (Anderson et al., 2016). This means that reading, understanding and completing documentation is limited for this population.

Despite these known difficulties, paper-based assessments remain the dominant mode of screening for Neurodiverse conditions. Scribes and readers may be provided, or assessments may be carried out in interview format. However, this is not only expensive but also may be inappropriate. Having a reader assist with a paper-based assessment may place a larger cognitive

burden on the person being assessed, resulting in inaccurate assessment. Additionally, the participant may feel embarrassed at having to ask for questions to be repeated or words to be defined. They may also be afraid of disclosing potentially stigmatising information, such as an inability to read, when a stranger is physically present. Thus, paper-based assessments risk inaccurate results and may increase the likelihood that an individual's difficulties are missed.

### **Prison staff knowledge of Neurodiversity**

A further issue that exacerbates issues surrounding Neurodiversity diagnostic and support systems in the Justice Sector is the level of prison staff knowledge about Neurodiversity. Very few studies have assessed the knowledge levels of prison staff. However, those that have been carried out suggest that improvement is required.

One study investigated the knowledge and understanding of ASD among 53 prison staff (McAdam, 2009, 2012). One-third reported they did not know what Autism was and half did not

know what Asperger's Disorder was. Over a third thought that offenders with ASD were most appropriately located in a secure hospital, even though research indicates this may not be the ideal location. Nearly 20% of the staff were unaware or unsure of whether the presentation of ASD varied between individuals with the condition.

The only other study investigating prison staff awareness of Neurodiversity was carried out more than 10 years ago and investigated LDDs in general. There, around a fifth of respondents felt that, due to a lack of awareness, people in prison who had LDDs were subject to abuse by prison staff (Talbot, 2007). The study predominantly asked open-answer questions and did not test staff's specific knowledge about any individual condition.

## A different approach: taking a person-centred, needs-led approach

As described above, categorical approaches to the diagnosis and support of Neurodiverse individuals have many serious shortcomings. An alternative to these, are dimensional approaches – approaches which consider an individual’s unique needs as a whole, rather than determining whether the individual fits certain diagnostic criteria and providing support only if these diagnostic criteria are met. Dimensional approaches are needs-led rather than diagnosis-led.

A shift away from categorical approaches towards more holistic, profile-based, dimensional approaches have been suggested by some psychiatrists (NIMH, 2014). This approach creates a formulation-based assessment and management plan based on all of an individual’s needs, whether they group neatly into diagnostic criteria or not. The key areas of challenge for that individual are identified with respect to their current social and physical environment and appropriate, holistic support is provided. A similar approach to Neurodiversity and

associated difficulties would be valuable, especially in the prison context.

Dimensional approaches are also typically person-centred – they put the person first and consider them as an individual rather than a category or type – e.g. ‘Sam, who has strengths in A, B and C but requires support with X, Y and Z and’ rather than ‘another young male prisoner with ADHD’. Person-centred approaches are often based on a biopsychosocial model of disability (see Glossary). This model incorporates the best aspects of two previous models of disability: the medical model and the social model (Engel, 1977, 1980). It is based on the idea that disability is the combination of differences in people’s bodies (bio-), differences in people’s minds (psycho-) and the mismatch between people’s needs and the physical and social environment that they live in (social).

By taking person-centred approach using the biopsychosocial model, we can better support Neurodiverse people, particularly in the prison context, resulting in better outcomes for all. For example, a person with ASD might become violent when unexpectedly transferred between cells or prisons, resulting in injuries to staff. A traditional approach, if the

individual either lacked a diagnosis or if staff did not understand the diagnosis, might be to sanction the individual and/or increase the number of staff involved in these transfers. However, this is unlikely to affect the behaviour in this case and the additional staff might cause the person to become more agitated, resulting in them becoming even more violent. An alternative approach would be to recognise that individuals with ASD often have differences to their minds which mean they require routine and are resistant to and fearful of change. Therefore, unexpected transfers are more likely to provoke a response in someone with ASD than someone without ASD. A more appropriate response might be to discuss transfer procedures with this individual and ensure that they are always informed in advance of any cell or prison changes. Additionally, the individual might be shown pictures or videos of their new cell or prison or introduced to key new staff in advance, to help them cope with the upcoming change and visualise their new location. This would result in reduced stress for the individual, improved rapport between the individual and staff, reduced likelihood of staff injuries during transfers and reduced staffing requirements during transfers.

## Accessible and effective profiling of complex adversity

As discussed above, there is a clear need for timely, practical and comprehensive profiling of both males and females in the Justice System, using dimensional, needs-led, person-centred approaches. This will allow staff (and the individuals themselves) to gain a thorough understanding **each person's** specific strengths and challenges. To do this, more holistic screening and support approaches are required, as needs and suitable interventions will vary between individuals (and over time).

One challenge to delivering this sort of approach to screening and support has been how to practically capture this information, especially if there are no specialists available to undertake this work. Accessible, voiced, computer-based screening solutions can be self-administered and can automatically and immediately generate functional guidance as a first step to providing support. As scores and personalised initial support recommendations are automatically generated, the administrative burden of screening participants is greatly reduced and the risk of errors during manual data-entry or scoring is eliminated. Computer-

based screening solutions also allow information to be easily communicated to relevant stakeholders across the prison, breaking down silos and allowing easier interdisciplinary working. Overall, they have the potential to rapidly, efficiently and comprehensively identify the most vulnerable. This may save time and allow conversations about support needs and recommended interventions to occur earlier in an individual's pathway through the Justice System, improving outcomes in this high-demand context.

## Conclusion

Only once an accurate picture of overall adversity is created can steps be made towards ensuring targeted support in prison is comprehensively and routinely provided. Accessible, computer-based screening solutions provide a cost-effective means of doing this. The identification and targeted support of people in prison with Neurodiverse conditions and related adversity will enable them to gain equitable opportunities to access education and employment programmes whilst in prison

and ensure that they are given suitable preparation for resettlement. Starting this process earlier both within the community, for example in schools, and on initial contact with police and the Justice System could reduce offending pathways. However, without this, we risk continuing to imprison Neurodiverse people and continuing to let them leave prison unprepared and at high risk of further adversity and reoffending.

## Author biographies

**Professor Amanda Kirby** has held a chair in Developmental Disorders in education at the University of South Wales since 2008. Her PhD was in emerging adulthood in DCD, from Leeds University. She is also a qualified GP. She founded The Dyscovery Centre, a specialist centre for children and adults with developmental disorders, in 1997 and ran it until 2015. She is Chair of Movement Matters, the UK umbrella organisation for movement difficulties. She is also a patron of the Dyspraxia Association in New Zealand, Medical Advisor to the Dyspraxia Foundation in the UK and a past advisor to the Dyspraxia Association in the Republic of Ireland. She has been on the international scientific committee for DCD and was part of the committee for the European guidelines for DCD and the 2019 international guidelines for DCD. She is the CEO of Do-IT Solutions Ltd., a 'tech for good' company providing person-centred assessments and support for people with Neurodiverse conditions and related difficulties.

**Helen Arnold-Richardson** has worked in a variety of roles within the Criminal and Youth Justice sector. She has led projects, contracts and teams supporting offenders in custody and through the gate and as a result, gained first-hand knowledge of the challenges offenders and staff face. She has worked on European projects focussed on reducing reoffending and supporting people in custody and has sat on strategic boards and advisory groups to support reducing reoffending through offender learning.

Dr Mary Cleaton has carried out research regarding Neurodiversity since 2018. Previously, she gained a PhD with the University of Cambridge, investigating the role of an imprinted gene in the control of maternal metabolism and foetal growth during pregnancy. She also gained a PGCE in Biology with Science from Cardiff Metropolitan University and taught secondary science at several secondary schools in south Wales. Since 2018, she has worked for Do-IT Solutions Ltd. and has actively published scientific research regarding Neurodiversity.

## Glossary

**Acalculia** – an acquired condition that affects understanding of mathematics and related concepts that use mathematics, e.g. money, time, positional directions. Caused by an Acquired Brain Injury. General intelligence is not affected. If mathematical skills are compromised since childhood with no apparent cause, see Dyscalculia.

**Acquired Brain Injury (ABI)** – an injury to the brain resulting from an external cause rather than a genetic, developmental or degenerative condition. For example, injury caused by trauma (see Traumatic Brain Injury), stroke, meningitis, encephalitis or poisoning.

**Adverse Childhood Experiences (ACEs)** – experiences that occurred before age 18 years that are known to have an adverse effect on long-term physical health, mental health, health-harming behaviours and other outcomes. Typically include: physical, verbal, emotional and sexual abuse; neglect; parental divorce/separation; parental death; domestic violence; parental mental illness; parental or family member alcohol abuse; parental or family member drug use; and parental or family member incarceration. Some studies also include other adverse experiences, e.g. poverty.

**Alexia** – an acquired condition that affects understanding of written language, i.e. reading and writing. Caused by an Acquired Brain Injury. General intelligence is not affected. If reading and writing are compromised since childhood with no apparent cause, see Dyslexia.

**Apraxia** – an acquired condition that affects gross motor skills (e.g. running, dancing, riding a bike, driving), fine motor skills (e.g. using cutlery, tying laces, buttoning, handwriting) and balance. Caused by an Acquired Brain Injury. If motor skills are compromised since childhood with no apparent cause, see Developmental Coordination Disorder (DCD).

**Asperger's Syndrome** – see Autism Spectrum Disorder (ASD). This historic term was generally applied to individuals with ASD who had average or above-average intelligence, no language delay and no delay in learning everyday skills such as dressing and feeding oneself.

**Attention-Deficit Disorder (ADD)** – see Attention-Deficit/Hyperactivity Disorder (ADHD).

**Attention-Deficit/Hyperactivity Disorder (ADHD)** – a developmental condition that affects attention, activity and impulsivity levels. This categorisation is based on DSM-V criteria, whereas the related condition Hyperkinetic Disorder is based on ICD-10 criteria. Between 1980 and 1987, ADHD was officially called 'Attention-Deficit Disorder (ADD) with or without hyperactivity'. There are three types of ADHD:

- **Predominantly inattentive** – where there are few hyperactive or impulsive symptoms but significant inattentive symptoms.
- **Predominantly hyperactive/impulsive** – where there are few inattentive symptoms but significant hyperactive and impulsive symptoms.
- **Combined** – where there are significant inattentive, hyperactive and impulsive symptoms.

**Autism** – see Autism Spectrum Disorder (ASD). This historic term was generally applied to individuals with ASD who had below-average intelligence, language delay and/or delay in learning everyday skills such as dressing and feeding oneself.

**Autism Spectrum Condition (ASC)** – see Autism Spectrum Disorder (ASD).

**Autism Spectrum Disorder (ASD)** – a spectrum of developmental conditions that affect social communication, social interaction, sensory sensitivity and flexibility of behaviour and thought. This umbrella term includes Autism and Asperger's Syndrome. Autism Spectrum Condition (ASC) is a synonym of Autism Spectrum Disorder.

**Biopsychosocial model** – a model through which disability can be understood. This model takes into account how the condition affects the person’s biology (e.g. genetic differences, physical differences, pain, fatigue), the affect the condition has on the person’s mind (e.g. anxiety, depression, fear of stigma) and the interaction between these two aspects and the person’s physical and social environment. It considers disability to be a combination of all of these aspects. E.g. someone with two above-knee amputations may not be disabled by their amputations *per se* but may be disabled by phantom pain, depression triggered by their change in life circumstances and/or the lack of ramps and lifts at their first-floor workplace.

**Categorical approach** – an approach to describing characteristics of people or objects. This approach groups these characteristics into categories, e.g. ‘tall’ versus ‘short’ or ‘blue’ versus ‘green’. This approach works well with some characteristics (e.g. a switch is either on or off) but does not work well for characteristics which lie along a spectrum (e.g. different cultures disagree on whether certain shades are ‘blue’ or ‘green’; a person who is considered ‘short’ in the UK in 2019 might be considered ‘average height’ in China in 2019 or in the UK in 1319).

**Chronic Tic Disorder (CTD)** – a Tic Disorder. CTD is diagnosed when someone has motor **or** vocal tics for **more than 1** year, starting before age 18 years.

**Developmental Coordination Disorder (DCD)** – a developmental condition that affects gross motor skills (e.g. running, dancing, riding a bike, driving), fine motor skills (e.g. using cutlery, tying laces, buttoning, handwriting) and balance. Dyspraxia is the term most commonly used in the UK, especially colloquially. However, DCD is the internationally-recognised official term.

**Developmental Language Disorder (DLD)** – a developmental condition that affects receptive language (understanding spoken language you hear), expressive language (language you speak), semantic language (understanding meaning in spoken language, e.g. jokes, euphemisms, metaphors) and/or pragmatic language (using spoken language appropriately in social situations). Historically, this was called Specific Language Impairment (SLI). It is an umbrella term that includes DSM-5 diagnoses such as Language Disorder and Social (Pragmatic) Communication Disorder and ICD-10 diagnoses such as Expressive Language Disorder, Mixed Receptive-Expressive Language Disorder and Social Pragmatic Communication Disorder. However, it is less broad than the umbrella terms Speech, Language and Communication Needs (SCLN) and Speech, Language and Communication Difficulties (SCLD).

**Dimensional approach** – an approach to describing characteristics of people or objects. This approach does **not** group these characteristics into categories, e.g. ‘tall’ versus ‘short’ or ‘blue’ versus ‘green’. This approach works well for characteristics which lie along a spectrum with only arbitrary dividing lines between them (e.g. different cultures disagree on whether certain shades are ‘blue’ or ‘green’; a person who is considered ‘short’ in the UK in 2019 might be considered ‘average height’ in China in 2019 or in the UK in 1319).

**DSM** – the Diagnostic and Statistical Manual of Mental Disorders. A system of diagnosing psychiatric illnesses, published by the American Psychiatric Association. The current edition is DSM-5 and was released in 2013.

**Dyscalculia** – a developmental condition that affects understanding of mathematics and related concepts that use mathematics, e.g. money, time, positional directions. General intelligence is not affected. If mathematical skills are compromised due to an acquired injury, see Acalculia.

**Dyslexia** – a developmental condition that affects understanding of written language, i.e. reading and writing. General intelligence is not affected. If reading and writing are compromised due to an acquired injury (e.g. stroke, Traumatic Brain Injury), see Alexia.

**Dyspraxia** – see Developmental Coordination Disorder (DCD). Dyspraxia is the term most commonly used in the UK, especially colloquially. However, DCD is the internationally-recognised official term. If motor skills are compromised due to an acquired injury (e.g. stroke, Traumatic Brain Injury), see Apraxia.

**Hyperkinetic Disorder** – see Attention-Deficit/Hyperactivity Disorder (ADHD). Hyperkinetic Disorder is a diagnosis made based on ICD-10 criteria whereas ADHD uses DSM-V criteria. It is equivalent to a severe version of combined ADHD.

**ICD** – the International Classification of Diseases. A system of classifying diseases, published by the World Health Organisation. The current edition is ICD-10 and was first used in 1994. A new edition (ICD-11) has been created and will be used from 1<sup>st</sup> January 2022.

**Intellectual Disability (ID)** – a developmental condition that affects global intelligence and everyday functional skills, e.g. self-care. Learning Disability is the term most commonly used in the UK. However, ID is the internationally-recognised official term and avoids confusion as Learning Disability in the USA is equivalent to Learning Difficulty in the UK.

**Learning Difficulty** – an umbrella term used in English and Welsh education, particularly post-16 education. Equivalent to Specific Learning Difficulty (SpLD). Generally, includes Dyslexia, Dyscalculia and Developmental Coordination Disorder (DCD). Sometimes, Attention-Deficit/Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD) and/or Developmental Language Disorder (DLD) are also included.

**Learning Disabilities and Difficulties (LDDs)** – an umbrella term used in English and Welsh post-16 education. Includes Learning Disability and Learning Difficulties. I.e. it generally includes Intellectual Disability (ID), Dyslexia, Dyscalculia and Developmental Coordination Disorder (DCD) but sometimes may also include Attention-Deficit/Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD) and/or Developmental Language Disorder (DLD).

**Learning Disability** – a term used in English and Welsh education and health services. In this context, equivalent to Intellectual Disability (ID). However, in other nations (e.g. USA) it is equivalent to the UK term Learning Difficulty.

**Neurodevelopmental Disorders (NDDs)** – an umbrella term. Includes Attention-Deficit/Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD), Developmental Coordination Disorder (DCD), Developmental Language Disorder (DLD), Dyscalculia, Dyslexia, Intellectual Disability (ID) and Tic Disorders.

**Neurodiversity** – a term coined by Judy Singer in the late 1990s. It is broadly equivalent to Neurodevelopmental Disorders but considers these conditions to represent normal, naturally occurring variations in human brains/minds rather than abnormal ‘disorders’. In this respect, Neurodiverse conditions are considered to be social categories, similar to ethnicity, gender or sexual orientation, and like these categories should not be stigmatised or eliminated. The term Neurodiversity recognises that many symptoms of Neurodiverse conditions are or can, in the right environment, be positive and that much of the disability experienced by Neurodiverse people is due to their interactions with an environment that is not reflective of their needs, rather than innate problems with their bodies or minds.

**Person-centred approach** – an approach to diagnosing, treating and/or managing physical and mental health conditions and Neurodiversity. This approach considers *all* of the challenges the individual person faces and how these challenges may change over time and with different environments. Diagnostic pathways and interventions are tailored to the

individual person rather than being a one-size-fits-all approach based on a standard response to suspected or confirmed diagnoses.

**Provisional Tic Disorder (PTD)** – a Tic Disorder. PTD is diagnosed when someone has motor **and/or** vocal tics for **less than 1 year**, starting before age 18 years. If the tics persist for more than one year, the condition is reclassified as either Chronic Tic Disorder or Tourette’s Syndrome, as applicable.

**Specific Language Impairment (SLI)** – a historic umbrella term, equivalent to Developmental Language Disorder (DLD).

**Specific Learning Difficulty (SpLD)** – an umbrella term used in English and Welsh education, particularly compulsory education. Equivalent to Learning Difficulty. Generally includes Dyslexia, Dyscalculia and Developmental Coordination Disorder (DCD). Sometimes, Attention-Deficit/Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD) and/or Developmental Language Disorder (DLD) are also included.

**Speech, Language and Communication Difficulties (SCLD)** – a broad umbrella term used in Welsh education. Equivalent to the English term Speech, Language and Communication Needs (SLCN).

**Speech, Language and Communication Needs (SCLN)** – a broad umbrella term used in English education. This includes difficulties due to Developmental Language Disorder (DLD) as well as stammering, stuttering and difficulties that stem from Autism Spectrum Disorder (ASD), hearing impairment and other causes. Equivalent to the Welsh term Speech, Language and Communication Difficulties (SLCD).

**Tics** – abnormal, repetitive, non-rhythmic, unintentional movements (motor tics) or vocalisations (vocal tics). These can be simple, e.g. eye blinking, sniffing, or complex, e.g. echopraxia (imitating another person’s actions) or palilalia (repeating words one has previously said). Tics are described as semi-voluntary or involuntary – they are suppressible but irresistible – suppression results in an irresistible urge and eventual expression of the tic.

**Tic Disorders** – an umbrella term, including developmental conditions characterised by tics. Includes Chronic Tic Disorder (CTD) and Tourette’s Syndrome. Provisional Tic Disorder (PTD) is sometimes also included in this umbrella term, although this is not the case in this report.

**Tourette’s Syndrome** – a Tic Disorder. Tourette’s Syndrome is diagnosed when someone has motor **and** vocal tics for **more than** 1 year, starting before age 18 years.

**Traumatic Brain Injury (TBI)** – a sub-category of Acquired Brain Injury (ABI). An injury to the brain resulting from trauma to the head or face (e.g. from a traffic accident, fight, sports injury, etc.). TBI, particularly if severe or repeated, can result in long-term symptoms that mimic aspects of Attention-Deficit/Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD) and Intellectual Disability (ID) in particular. Symptoms may also sometimes include Acalculia, Alexia and/or Apraxia. TBI severity is classified based on symptoms immediately post-injury (e.g. tested using the Glasgow Coma Scale) or, if these are unknown, duration of unconsciousness:

- **Mild:** Glasgow Coma Score of 13-15 and/or less than 10 minutes loss of consciousness.
- **Moderate:** Glasgow Coma Score of 9-12 and/or between 10 minutes and 6 hours loss of consciousness.
- **Severe:** Glasgow Coma Score of less than 9 and/or more than 6 hours loss of consciousness.

– an injury to the brain resulting from an external cause rather than a genetic, developmental or degenerative condition. For example, injury caused by trauma (see Traumatic Brain Injury), stroke, meningitis, encephalitis or poisoning.

## References

- Alexander-Passe, N. (2016), "Dyslexia: Investigating Self-Harm and Suicidal Thoughts/Attempts as a Coping Strategy", *Journal of Psychology & Psychotherapy*, Vol. 5 No. 6, p. 1000224.
- Allely, C.S. (2015), "Autism Spectrum Disorders in the Criminal Justice System: Police Interviewing, the Courtroom and the Prison Environment", in Allely, C.S., Varadinova, M., Boyadjieva, N. and Alrahbeni, T.M. (Eds.), *Recent Advances in Autism*, SM Group.
- Anderson, S.A.S., Hawes, D.J. and Snow, P.C. (2016), "Language impairments among youth offenders: A systematic review", *Children and Youth Services Review*, Elsevier Ltd, Vol. 65, pp. 195–203.
- APA. (2013), *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed., American Psychiatric Publishing, Washington, DC.
- Astle, D.E. and Bathelt, J. (2019), "Remapping the cognitive and neural profiles of children who struggle at school", *Developmental Science*, Vol. 22, p. e12747.
- Babikian, T., Merkle, T., Savage, R.C., Giza, C.C. and Levin, H. (2015), "Chronic Aspects of Pediatric Traumatic Brain Injury: Review of the Literature", *Journal of Neurotrauma*, Vol. 32 No. 23, pp. 1849–1860.
- Bartlett, A. and Hollins, S. (2018), "Challenges and mental health needs of women in prison", *The British Journal of Psychiatry*, Vol. 212 No. 3, pp. 134–136.
- Biederman, J., Mick, E., Faraone, S. V, Braaten, E., Doyle, A., Spencer, T., Wilens, T.E., et al. (2002), "Influence of Gender on Attention Deficit Hyperactivity Disorder in Children Referred to a Psychiatric Clinic", *American Journal of Psychiatry*, Vol. 159 No. 1, pp. 36–42.
- Bihlar Muld, B., Jokinen, J., Bölte, S. and Hirvikoski, T. (2015), "Long-term outcomes of pharmacologically treated versus non-treated adults with ADHD and substance use disorder: A naturalistic study", *Journal of Substance Abuse Treatment*, The Authors., Vol. 51, pp. 82–90.
- Bishop, D.V.M., Whitehouse, A.J.O., Watt, H.J. and Line, E.A. (2008), "Autism and diagnostic

substitution: evidence from a study of adults with a history of developmental language disorder”, *Developmental Medicine & Child Neurology*, Vol. 50 No. 5, pp. 341–345.

Bradley, K. (2009), *The Bradley Report: Review of People with Mental Health Problems or Learning Disabilities in the Criminal Justice System*, London, UK, available at:<https://doi.org/10.1080/17449200903115847>.

Braiden, H.J., Bothwell, J. and Duffy, J. (2010), “Parents’ experience of the diagnostic process for Autistic Spectrum Disorders”, *Child Care in Practice*, Vol. 16 No. 4, pp. 377–389.

Bryan, K., Freer, J. and Furlong, C. (2007), “Language and communication difficulties in juvenile offenders”, *International Journal of Language and Communication Disorders*, Vol. 42 No. 5, pp. 505–520.

Butwicka, A., Långström, N., Larsson, H., Lundström, S., Serlachius, E., Almqvist, C., Frisé, L., et al. (2017), “Increased Risk for Substance Use-Related Problems in Autism Spectrum Disorders: A Population-Based Cohort Study”, *Journal of Autism and Developmental Disorders*, Springer US, Vol. 47 No. 1, pp. 80–89.

Capusan, A.J., Bendtsen, P., Marteinsdottir, I. and Larsson, H. (2019), “Comorbidity of adult ADHD and its subtypes with Substance Use Disorder in a large population-based epidemiological study”, *Journal of Attention Disorders*, Vol. 23 No. 12, pp. 1416–1426.

Chang, H.K., Hsu, J.W., Wu, J.C., Huang, K.L., Chang, H.C., Bai, Y.M., Chen, T.J., et al. (2018), “Traumatic Brain Injury in early childhood and risk of Attention-Deficit/Hyperactivity Disorder and Autism Spectrum Disorder: a nationwide longitudinal study”, *Journal of Clinical Psychiatry*, Vol. 79 No. 6, available at:<https://doi.org/10.4088/JCP.17m11857>.

Chapman, S.L.C. and Wu, L.-T. (2012), “Substance abuse among individuals with intellectual disabilities”, *Research in Developmental Disabilities*, Elsevier Ltd, Vol. 33 No. 4, pp. 1147–1156.

Cleaton, M.A.M. and Kirby, A. (2018), “Why Do We Find it so Hard to Calculate the Burden of Neurodevelopmental Disorders?”, *Journal of Childhood & Developmental Disorders*, Vol. 4 No. 3, pp. 1–20.

Coates, S. (2016), *Unlocking Potential: A Review of Education in Prison*, London, UK.

- Conti-Ramsden, G., Simkin, Z. and Botting, N. (2006), "The prevalence of autistic spectrum disorders in adolescents with a history of specific language impairment (SLI)", *Journal of Child Psychology and Psychiatry and Allied Disciplines*, Vol. 47 No. 6, pp. 621–628.
- Crane, L., Chester, J.W., Goddard, L., Henry, L.A. and Hill, E. (2016), "Experiences of autism diagnosis: A survey of over 1000 parents in the United Kingdom", *Autism*, Vol. 20 No. 2, pp. 153–162.
- Creese, B. (2016), *An Assessment of the English and Maths Skills Levels of Prisoners in England*, *London Review of Education*, Vol. 14, London, UK, available at:<https://doi.org/10.18546/LRE.14.3.02>.
- Dean, M., Harwood, R. and Kasari, C. (2017), "The art of camouflage: Gender differences in the social behaviors of girls and boys with autism spectrum disorder", *Autism*, Vol. 21 No. 6, pp. 678–689.
- Van Duijvenbode, N. and Vandernagel, J.E.L. (2019), "A systematic review of Substance Use (Disorder) in individuals with mild to borderline Intellectual Disability", *European Addiction Research*, Vol. 25 No. 6, pp. 263–282.
- Engel, G.L. (1977), "The need for a new medical model: A challenge for biomedicine", *Science*, Vol. 196 No. 4286, pp. 129–136.
- Engel, G.L. (1980), "The clinical application of the biopsychosocial model", *American Journal of Psychiatry*, Vol. 137 No. 5, pp. 535–544.
- Farooq, R., Emerson, L.M., Keoghan, S. and Adamou, M. (2016), "Prevalence of adult ADHD in an all-female prison unit", *ADHD Attention Deficit and Hyperactivity Disorders*, Vol. 8 No. 2, pp. 113–119.
- Fisher, M.H., Moskowitz, A.L. and Hodapp, R.M. (2013), "Differences in social vulnerability among individuals with Autism Spectrum Disorder, Williams syndrome, and Down syndrome", *Research in Autism Spectrum Disorders*, Elsevier Ltd, Vol. 7 No. 8, pp. 931–937.
- Flory, K. and Lynam, D.R. (2003), "The relation between Attention Deficit Hyperactivity Disorder and substance abuse: What role does Conduct Disorder play?", *Clinical Child*

*and Family Psychology Review*, Vol. 6 No. 1, pp. 1–16.

Fuller-Thomson, E., Carroll, S.Z. and Yang, W. (2018), “Suicide Attempts Among Individuals With Specific Learning Disorders: An Underrecognized Issue”, *Journal of Learning Disabilities*, Vol. 51 No. 3, pp. 283–292.

Gershon, J. (2002), “A meta-analytic review of gender differences in ADHD”, *Journal of Attention Disorders*, Vol. 5 No. 3, pp. 143–154.

Giannini, M.J., Bergmark, B., Kreshover, S., Elias, E., Plummer, C. and O’Keefe, E. (2010), “Understanding suicide and disability through three major disabling conditions: Intellectual disability, spinal cord injury, and multiple sclerosis”, *Disability and Health Journal*, Vol. 3 No. 2, pp. 74–78.

Green, J.L., Rinehart, N., Anderson, V., Nicholson, J.M., Jongeling, B. and Sciberras, E. (2015), “Autism spectrum disorder symptoms in children with ADHD: A community-based study”, *Research in Developmental Disabilities*, Elsevier Ltd., Vol. 47, pp. 175–184.

Gudjonsson, G.H., Sigurdsson, J.F., Bragason, O.O., Newton, A.K. and Einarsson, E. (2008), “Interrogative suggestibility, compliance and false confessions among prisoners and their relationship with Attention Deficit Hyperactivity Disorder (ADHD) symptoms”, *Psychological Medicine*, Vol. 38 No. 7, pp. 1037–1044.

Gudjonsson, G.H., Sigurdsson, J.F., Sigfusdottir, I.D. and Young, S. (2012a), “False confessions to police and their relationship with conduct disorder, ADHD, and life adversity”, *Personality and Individual Differences*, Vol. 52 No. 6, pp. 696–701.

Gudjonsson, G.H., Sigurdsson, J.F., Sigfusdottir, I.D. and Young, S. (2012b), “An epidemiological study of ADHD symptoms among young persons and the relationship with cigarette smoking, alcohol consumption and illicit drug use”, *Journal of Child Psychology and Psychiatry and Allied Disciplines*, Vol. 53 No. 3, pp. 304–312.

Gudjonsson, G.H., Young, S. and Bramham, J. (2007), “Interrogative suggestibility in adults diagnosed with Attention-Deficit Hyperactivity Disorder (ADHD). A potential vulnerability during police questioning”, *Personality and Individual Differences*, Vol. 43 No. 4, pp. 737–745.

- Hammerness, P., Petty, C., Faraone, S. V. and Biederman, J. (2017), "Do Stimulants Reduce the Risk for Alcohol and Substance Use in Youth With ADHD? A Secondary Analysis of a Prospective, 24-Month Open-Label Study of Osmotic-Release Methylphenidate", *Journal of Attention Disorders*, Vol. 21 No. 1, pp. 71–77.
- Harpin, V. and Young, S. (2012), "The challenge of ADHD and youth offending", *Cutting Edge Psychiatry in Practice*, Vol. 2, pp. 138–143.
- Harrop, C., Gulsrud, A. and Kasari, C. (2015), "Does gender moderate core deficits in ASD? An investigation into restricted and repetitive behaviours in girls and boys with ASD", *Journal of Autism & Developmental Disorders*, Vol. 45 No. 11, pp. 3644–3655.
- Hayes, S., Shackell, P., Mottram, P. and Lancaster, R. (2007), "The prevalence of intellectual disability in a major UK prison", *British Journal of Learning Disabilities*, Vol. 35 No. 3, pp. 162–167.
- Hiller, R.M., Young, R.L. and Weber, N. (2014), "Sex differences in Autism Spectrum Disorder based on DSM-5 criteria: evidence from clinician and teacher reporting", *Journal of Abnormal Child Psychology*, Vol. 42 No. 8, pp. 1381–1393.
- Hirvikoski, T., Mittendorfer-Rutz, E., Boman, M., Larsson, H., Lichtenstein, P. and Bölte, S. (2016), "Premature mortality in autism spectrum disorder", *British Journal of Psychiatry*, Vol. 208 No. 3, pp. 232–238.
- Hofvander, B., Delorme, R., Chaste, P., Nydén, A., Wentz, E., Ståhlberg, O., Herbrecht, E., et al. (2009), "Psychiatric and psychosocial problems in adults with normal-intelligence autism spectrum disorders", *BMC Psychiatry*, Vol. 9, pp. 1–9.
- Hopkins, K. (2012), *The Pre-Custody Employment, Training and Education Status of Newly Sentenced Prisoners: Results from the Surveying Prisoner Crime Reduction (SPCR) Longitudinal Cohort Study of Prisoners*, London, UK.
- Hughes, N., Williams, H., Chitsabesan, P., Davies, R. and Mounce, L. (2012), *Nobody Made the Connection: The Prevalence of Neurodisability in Young People Who Offend*, London, UK, available at: [https://yjlc.uk/wp-content/uploads/2015/03/Neurodisability\\_Report\\_FINAL\\_UPDATED\\_\\_01\\_11\\_12.pdf](https://yjlc.uk/wp-content/uploads/2015/03/Neurodisability_Report_FINAL_UPDATED__01_11_12.pdf).

- Impey, M. and Heun, R. (2012), "Completed suicide, ideation and attempt in attention deficit hyperactivity disorder", *Acta Psychiatrica Scandinavica*, Vol. 125 No. 2, pp. 93–102.
- Jacobson, J. (2008), *No One Knows: Police Responses to Suspects' Learning Disabilities and Learning Difficulties: A Review of Policy and Practice*, London, UK.
- Jawaid, A., Riby, D.M., Owens, J., White, S.W., Tarar, T. and Schulz, P.E. (2012), "'Too withdrawn' or 'too friendly': considering social vulnerability in two neuro-developmental disorders", *Journal of Intellectual Disability Research*, Vol. 56 No. 4, pp. 335–350.
- Jones, L., Goddard, L., Hill, E.L., Henry, L.A. and Crane, L. (2014), "Experiences of Receiving a Diagnosis of Autism Spectrum Disorder: A Survey of Adults in the United Kingdom", *Journal of Autism and Developmental Disorders*, Vol. 44 No. 12, pp. 3033–3044.
- Keenan, M., Dillenburger, K., Doherty, A., Byrne, T. and Gallagher, S. (2010), "The Experiences of Parents During Diagnosis and Forward Planning for Children with Autism Spectrum Disorder", *Journal of Applied Research in Intellectual Disabilities*, Vol. 23, pp. 390–397.
- Knop, J., Penick, E.C., Nickel, E.J., Mortensen, E.L., Sullivan, M.A., Murtaza, S., Jensen, P., et al. (2009), "Childhood ADHD and conduct disorder as independent predictors of male alcohol dependence at age 40", *Journal of Studies on Alcohol and Drugs*, Vol. 70 No. 2, pp. 169–177.
- Van Der Kolk, B.A. (2005), "Developmental Trauma Disorder: A new rational diagnosis for children with complex trauma histories", *Psychiatric Annals*, Vol. 35 No. 5, pp. 401–408.
- Lai, M.-C., Lombardo, M. V, Ruigrok, A.N. V, Chakrabarti, B., Auyeung, B., Szatmari, P., Happé, F., et al. (2017), "Quantifying and exploring camouflaging in men and women with autism", *Autism*, Vol. 21 No. 6, pp. 690–702.
- Lamb, N. (2018), *The Autism Diagnosis Crisis: Research from Rt Hon Norman Lamb MP and the All Part Parliamentary Group on Autism Uncovers Stark Regional Variation and Long Waits for Autism Diagnosis*, London, UK.

- Loucks, N. (2007a), *No One Knows: Offenders with Learning Difficulties and Learning Disabilities - Review of Prevalence and Associated Needs*, London, UK, available at: <http://www.ohrn.nhs.uk/resource/policy/NoOneKnowPrevalence.pdf>.
- Loucks, N. (2007b), *No One Knows: Offenders with Learning Difficulties and Learning Disabilities: The Prevalence and Associated Needs of Offenders with Learning Difficulties and Learning Disabilities*, London, UK.
- Loucks, N. and Talbot, J. (2007), *No One Knows: Identifying and Supporting Prisoners with Learning Difficulties and Learning Disabilities: The Views of Prison Staff (Scotland)*, London, UK.
- Mandy, W., Chilvers, R., Chowdhury, U., Salter, G., Seigal, A. and Skuse, D. (2012), "Sex differences in Autism Spectrum Disorder: evidence from a large sample of children and adolescents", *Journal of Autism & Developmental Disorders*, Vol. 42 No. 7, pp. 1304–1313.
- Mansell Committee. (1993), *Services for People with Learning Disabilities and Challenging Behaviour or Mental Health Needs: Report of a Project Group*, London, UK.
- Masip, J., Martínez, C., Blandón-Gitlin, I., Sánchez, N., Herrero, C. and Ibabe, I. (2018), "Learning to detect deception from evasive answers and inconsistencies across repeated interviews: A study with lay respondents and police officers", *Frontiers in Psychology*, Vol. 8 No. JAN, pp. 1–17.
- McAdam, P. (2009), "Knowledge and understanding of the Autism spectrum amongst prison staff", *Good Autism Practice*, Vol. 10 No. 1, pp. 19–25.
- McAdam, P. (2012), "Knowledge and understanding of the Autism spectrum amongst prison staff", *Prison Service Journal*, Vol. 202, pp. 26–30.
- McDaniels-Wilson, C. and Belknap, J. (2008), "The extensive sexual violation and sexual abuse histories of incarcerated women", *Violence Against Women*, Vol. 14 No. 10, pp. 1090–1127.
- McManus, S., Bebbington, P., Jenkins, R. and Brugha, T. (2016), *Mental Health and Wellbeing in England: Adult Psychiatric Morbidity Survey 2014*, Leeds, UK, available at:

[https://files.digital.nhs.uk/pdf/q/3/mental\\_health\\_and\\_wellbeing\\_in\\_england\\_full\\_report.pdf](https://files.digital.nhs.uk/pdf/q/3/mental_health_and_wellbeing_in_england_full_report.pdf).

McManus, S., Meltzer, H., Brugha, T., Bebbington, P. and Jenkins, R. (2009), *Adult Psychiatric Morbidity in England, 2007: Results of a Household Survey*, Leeds, UK.

Missiuna, C., Moll, S., Law, M., King, S. and King, G. (2006), "Mysteries and mazes: parents' experiences of children with developmental coordination disorder.", *Canadian Journal of Occupational Therapy*, Vol. 73 No. 1, pp. 7–17.

Miyasaka, M., Kajimura, S. and Nomura, M. (2018), "Biases in understanding Attention Deficit Hyperactivity Disorder and Autism Spectrum Disorder in Japan", *Frontiers in Psychology*, Vol. 9 No. FEB, pp. 1–13.

MoJ. (2009), *Offender Management Caseload Statistics 2008*, London, UK, available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/218068/offender-management-caseload-statistics-2008-2.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/218068/offender-management-caseload-statistics-2008-2.pdf).

MoJ. (2013), *Safety in Custody Statistics, England and Wales: Update to September 2013*, London, UK, available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/276034/safety-custody-sep-2013.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/276034/safety-custody-sep-2013.pdf).

MoJ. (2018), *Offender Management Statistics Bulletin, England and Wales: Quarterly April to June 2018*, London, UK, available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/750698/omsq-bulletin-2018-q2.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/750698/omsq-bulletin-2018-q2.pdf).

MoJ. (2019), *Safety in Custody Statistics, England and Wales: Deaths in Prison Custody to December 2018, Assaults and Self-Harm to September 2018*, London, UK, available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/774880/safety-in-custody-bulletin-2018-Q3.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/774880/safety-in-custody-bulletin-2018-Q3.pdf).

Mottram, P.G. (2007), *HMP Liverpool, Styal and Hindley Study Report*, Liverpool, UK.

NAO. (2017), *Mental Health in Prisons*, London, UK, available at: <https://www.nao.org.uk/wp-content/uploads/2017/06/Mental-health-in-prisons.pdf>.

- National Autistic Society. (2014), *Careless: Will the Government Protect Vulnerable People with Autism from Abuse, Neglect and Loneliness?*, London, UK.
- NCA. (2019), *County Lines Drug Supply, Vulnerability and Harm 2018*, London, UK, available at: <http://www.nationalcrimeagency.gov.uk/publications/993-nac-19-095-county-lines-drug-supply-vulnerability-and-harm-2018/file>.
- O'Hagan, A. and Hardwick, R. (2017), "Behind Bars: The Truth about Drugs in Prisons", *Forensic Research & Criminology International Journal*, Vol. 5 No. 3, p. 00158.
- Parkin, E., Kennedy, S., Bate, A., Long, R., Hubble, S. and Powell, A. (2018), *Learning Disability : Overview of Policy and Services*, London, UK, available at: <https://researchbriefings.files.parliament.uk/documents/SN07058/SN07058.pdf>.
- Payne, K.-L. (2017), "Introducing social vulnerability and compliance as factors for understanding offending in Autism Spectrum Disorder", *PsyPAG Quarterly*, Vol. 102, pp. 21–25.
- Prison Reform Trust. (2017), *"There's a Reason We're in Trouble": Domestic Abuse as a Driver to Women's Offending*, London, UK.
- Reed, J. (1992), *Review of Health and Social Services for Mentally Disordered Offenders and Others Requiring Similar Services: Volume 2; Service Needs; The Reports of the Community, Hospital and Prison Advisory Groups and an Overview by the Steering Committee*, London, UK.
- Ross, C. (2018), "NHS Grampian accused of 'shocking' discrimination against adults with ADHD", *The Press and Journal*, available at: <https://www.pressandjournal.co.uk/fp/news/aberdeen/1512913/nhs-grampian-accused-of-shocking-discrimination-against-adults-with-adhd/> (accessed 28 January 2019).
- Rucklidge, J.J. (2010), "Gender differences in Attention-Deficit/Hyperactivity Disorder", *The Psychiatric Clinics of North America*, Vol. 33 No. 2, pp. 357–373.
- Sedgewick, F., Hill, V., Yates, R. and Pickering, L. (2016), "Gender Differences in the Social Motivation and Friendship Experiences of Autistic and Non-autistic Adolescents",

- Journal of Autism and Developmental Disorders*, Springer US, Vol. 46 No. 4, pp. 1297–1306.
- Sofronoff, K., Dark, E. and Stone, V. (2011), “Social vulnerability and bullying in children with Asperger syndrome”, *Autism*, Vol. 15 No. 3, pp. 355–372.
- Spicer, J., Moyle, L. and Coomber, R. (2019), “The variable and evolving nature of ‘cuckooing’ as a form of criminal exploitation in street level drug markets”, *Trends in Organized Crime*, Trends in Organized Crime, available at:<https://doi.org/10.1007/s12117-019-09368-5>.
- Sprafkin, J., Gadow, K.D., Weiss, M.D., Schneider, J. and Nolan, E.E. (2007), “Psychiatric comorbidity in ADHD symptom subtypes in clinic and community adults”, *Journal of Attention Disorders*, Vol. 11 No. 2, pp. 114–124.
- Talbot, J. (2007), *No One Knows: Identifying and Supporting Prisoners with Learning Difficulties and Learning Disabilities: The Views of Prison Staff (England and Wales)*, London, UK.
- Talbot, J. (2008), *No One Knows: Prisoners’ Voices: Experiences of the Criminal Justice System by Prisoners with Learning Disabilities and Difficulties*, London, UK.
- Talbot, J. and Riley, C. (2007), “No one knows: Offenders with learning difficulties and learning disabilities”, *British Journal of Learning Disabilities*, Vol. 35 No. 3, pp. 154–161.
- Wechsler, D. (1999), *Wechsler Adult Intelligence Scale - 3rd UK Edition (WAIS-III UK)*, Oxford, UK.
- WHO. (1993), *The ICD-10 Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines*, World Health Organisation, Geneva.
- Wieland, J. and Zitman, F.G. (2016), “It is time to bring borderline intellectual functioning back into the main fold of classification systems”, *Transactions of the Korean Institute of Electrical Engineers*, Vol. 40 No. 4, pp. 204–206.
- Van Wijngaarden-Cremers, P.J.M., Van Eeten, E., Groen, W.B., Van Deurzen, P.A., Oosterling, I.J. and Van Der Gaag, R.J. (2014), “Gender and Age Differences in the Core Triad of Impairments in Autism Spectrum Disorders: A Systematic Review and Meta-analysis”,

*Journal of Autism & Developmental Disorders*, Vol. 44 No. 3, pp. 627–635.

Wilens, T.E., Martelon, M., Joshi, G., Bateman, C., Fried, R., Petty, C. and Biederman, J. (2011), “Does ADHD predict substance use disorders? A 10-year follow-up study of young adults with ADHD”, *Journal of the American Academy of Child & Adolescent Psychiatry*, Vol. 50 No. 6, pp. 543–553.

Williams, K., Papadopoulou, V. and Booth, N. (2012), *Prisoners’ Childhood and Family Backgrounds: Results from the Surveying Prisoner Crime Reduction (SPCR) Longitudinal Cohort Study of Prisoners*, London, UK, available at:  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/278837/prisoners-childhood-family-backgrounds.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/278837/prisoners-childhood-family-backgrounds.pdf).

Williams, K., Poyser, J. and Hopkins, K. (2012), *Accommodation, Homelessness and Reoffending of Prisoners: Results from the Surveying Prisoner Crime Reduction (SPCR) Survey*, London, UK.

Yang, L.-Y., Huang, C.-C., Chiu, W.-T., Huang, L.-T., Lo, W.-C. and Wang, J.-Y. (2016), “Association of traumatic brain injury in childhood and attention-deficit/hyperactivity disorder: a population-based study”, *Pediatric Research*, Vol. 80 No. 3, pp. 356–362.

Young, S., Gudjonsson, G.H., Wells, J., Asherson, P., Theobald, D., Oliver, B., Scott, C., et al. (2009), “Attention deficit hyperactivity disorder and critical incidents in a Scottish prison population”, *Personality and Individual Differences*, Elsevier Ltd, Vol. 46 No. 3, pp. 265–269.

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