Neurodisability in the youth justice system: recognising and responding to the criminalisation of neurodevelopmental impairment

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Abstract

A recent comprehensive review of research evidence reveals a disproportionately high prevalence of neurodevelopmental disorders amongst young people in custodial institutions that is consistent across various international contexts (Hughes et al., 2012). This reveals a widespread failure of current practices and interventions intended to prevent offending and reoffending to recognise or to meet the needs of these vulnerable young people, and therefore promotes a fundamental rethinking of the approaches of the youth justice system. Cognitive and emotional traits associated with specific neurodevelopmental disorders increase the propensity to antisocial or criminal behaviour, as well as heightening susceptibility to a range of negative social experiences that further increase risk of criminality. An awareness of this vulnerability emphasises the role that could be played by family support and education services in reducing the risk of future criminal behaviour due to neurodevelopmental impairment, if underpinned by models of Therapeutic Justice and Justice Reinvestment. Furthermore it serves to challenge the processes within youth justice systems that serve to disable, and ultimately criminalise, young people with neurodevelopmental impairment. Such processes include inadequate forms of assessment and screening, and inappropriate assumptions of verbal and cognitive competence that underpin legal processes and youth justice interventions.

Introduction

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; American Psychiatric Association, 2013: 31) specifies diagnostic criteria for a range of 'neurodevelopmental disorders': 'a group of conditions… [which] typically manifest early in development, often before the child enters grade school, and are characterised by developmental deficits that produce impairments of personal, social, academic, or occupational functioning.' This category therefore comprises a range of clinically defined disorders, including: intellectual/learning disability; specific learning disorder; communication disorders; attention-deficit/hyperactivity disorder; and autism spectrum disorder.

The specific impairments associated with each of these disorders are briefly outlined in Table 1, and commonly include: communication difficulties, cognitive delays, learning difficulties, significant difficulties with everyday tasks, and emotional and behavioural problems. Such impairments are often the result of a complex mix of influences, including genetic, pre-birth or birth trauma, infection, illness or injury in childhood, or nutritional, educational or emotional deprivation (Patel et al., 2011).

A recent review of research and government data drawn from a variety of national contexts examined the prevalence of neurodevelopmental disorders among incarcerated young people, and compared these to equivalent rates established in studies of young people in the general population (Hughes et al., 2012). The findings of this review are summarised in Table 1. This data clearly requires careful interpretation given the methodological and analytical challenges in undertaking such a review, combining and comparing studies with varied definitions, measures, methods, populations and national/policy contexts (Hughes et al., 2012). Notwithstanding these challenges, and the caveats to interpretation that they require, the evidence available consistently suggests a disproportionately high rate of neurodevelopmental disorders among incarcerated young people. Indeed, it suggests that a significant proportion of young people in the custodial estate have one or more neurodevelopmental disorder, signifying high levels of need. What's more, the prevalence of clinically defined disorders is likely to be an underestimate of the proportion of young people affected by particular symptoms or sub-clinical levels of impairment.

This weight of evidence warrants a search for explanations as to why young people with certain childhood neurodevelopmental disorders may be at greater risk of criminality, criminalisation, and ultimately custodial intervention. It suggests a widespread failure of current practices and interventions intended to prevent offending and reoffending to recognise and meet the needs of these vulnerable young people. In particular it calls into question whether Articles 37 and 40 of the United Nations Convention on the Rights of the Child (UNCRC) are being upheld for this population. These articles establish the need for children and young people in the criminal justice system to be dealt with in ways that take account of their specific developmental needs, including through interventions that promote care, guidance and support. Consequently, this evidence promotes a radical rethinking of the approaches of the youth justice system, and of policy and services more generally, in seeking to meet the needs of and ensure justice for these young people.

Table 1. Prevalence of neurodevelopmental disorders (Hughes et al., 2012)

Neurodevelopmental disorder	Definition (based on APA, 2000; 2013)	Prevalence rates among young people in the general population	Prevalence rates among young people in custody
Learning / Intellectual Disability	Deficits in: - cognitive capacity (measured by an IQ score of less than 70); and - adaptive functioning (significant difficulties with everyday tasks) Onset prior to adulthood	2–4%[1]	23–32%[2]
Dyslexia	A significant discrepancy between full-scale IQ and reading ability (Nb. replaced in DSM-5 with Specific Learning Disorder)	5–10%[3]	43–57%[4]
Communication Disorders	Problems with speech, language or hearing that significantly impact upon an individual's academic achievement or day-to-day social interactions. Includes: - language disorder (expressive and receptive-expressive language) - speech sound disorder - childhood-onset fluency disorder (stuttering).	5–7%[5]	60–90%[6]
Attention-Deficit/Hyperactivity Disorder	Persistence in multiple symptoms of inattention and/or hyperactivity/impulsivity	1.7–9%[7]	12%[8]
Autistic Spectrum Disorder	Qualitative abnormalities in reciprocal social interactions and communication, and markedly restricted repetitive and stereotyped patterns of behaviour and interests	0.6–1.2%[9]	15%[10]

[1] McKay and Neal, 2009; Australian Institute of Health and Welfare, 2003; Gerber, 1984
[2] Kroll et al, 2002; Rayner et al, 2005
[3] Siegal, 2007
[4] Rack, 2005; Reid and Kirk, 2002; Snowling et al, 2000.
[5] Tomblin et al, 2000; Larsen and McKinley, 1995.
[6] Bryan et al, 2007; Bryan, 2004; Snowling et al, 2000; Gregory and Bryan, 2011.
[7] SIGN, 2001; NICE, 2008; SIGN, 2001; Merrell and Tymms, 2001
[8] Fazel et al., 2008
[9] Chakrabarti and Fombonne, 2005; Gillberg, 1995; Baird et al, 2006.
[10] Anckarsater et al, 2007

This paper provides a framework that is intended to inform such a rethink. It begins by examining the various ways in which the symptoms and expression of specific neurodevelopmental disorders can influence a propensity towards criminality and criminalisation. There are clearly limitations in adopting clinically defined neurodevelopmental disorders as a means to understand offending behaviour. The accuracy and distinctiveness of specific disorders can contrast to the fluid and overlapping nature of the symptoms of impairment experienced by individuals (Kruger et al., 2005). Furthermore such definitions can ignore those with 'subclinical' levels of need that do not meet diagnostic criteria for individual disorders, who are still significantly affected by multiple and complex expressions of impairment. Nonetheless, as the discussion will illustrate, a range of intrinsic risk factors for offending are strongly associated with particular neurodevelopmental disorders.

The approach of the DSM has also been criticised for being historically and socially constructed, based on the dominance of specific scientific disciplines and discourses (Mallett, 2006), and with inherent cultural and gender biases (Hartung and Widiger, 1998; Lewis-Fernandez et al., 2010; Narrow, 2007; Thakker and Ward, 1998). The use of the clinical diagnoses can also reinforce the dominance of a 'medical model' in understanding impairment, emphasising individual deficit to be addressed through medical intervention (Baldry et al., 2008). Such an approach is at odds with understandings of the influence of a complex array of experiences on the expression of neurodevelopmental difficulties, including in relation to the propensity towards antisocial behaviour. The discussion that follows therefore also emphasises the social and environmental factors that serve to increase risk of offending, as well as experiences of disability, discrimination and criminalisation that are inherent in systemic and institutional processes.

Taken together, these strands of analysis offer significant insights into how youth justice systems may be reformed so as to address the prevalence of neurodevelopmental disorders among young people in custody. The conclusion outlines some of these implications.

Antisocial behavioural traits resulting from cognitive or emotional deficits

Developmental psychopathology is the study of psychological disorders over the life-course so as to understand how their manifestation and progression can cause divergence from normative or typical development (Cicchetti, 1993; Rutter & Scroufe, 2000). Through an 'analysis of the social difficulties arising from neurological insults' (Yeates et al., 2007, p.535), developmental psychopathology seeks to understand:

> *how children's daily functioning in the social world is associated with their abilities to identify, think about, produce, and regulate emotions; to consider other people's perspectives, beliefs, and intentions; and to solve interpersonal problems. (Yeates et al., 2007: 536)*

Such research therefore considers how impairments in cognitive functions (reasoning, thinking and perception) and social-affective functions (the expression of emotion and

formation of relationships) may produce certain behavioural traits in particular contexts and situations.

Models and frameworks emerging from developmental psychopathology can be used to understand how cognitive and emotional traits associated with particular neurodevelopmental disorders can directly influence propensity towards aggressive and antisocial behaviour in particular social situations, and therefore increase vulnerability towards criminality (Hughes, 2015). The following examples serve to illustrate this.

- The behavioural symptoms of ADHD perhaps offer the most well-known association between a neurodevelopmental disorder and problematic behaviour. ADHD is characterised by a combination of symptoms, including inattentiveness, hyperactivity, and impulsivity. The latter is particularly implicated in certain forms of antisocial behaviour through a 'de-coupling of cognition and emotion' (Williams, 2013) expressed as impatience, sensation-seeking and difficulties in restraining emotional reactions. This can increase the likelihood of spontaneous, impulsive acts, particularly in response to provocation or conflict.

- Understanding the particular hormones and neurotransmitters associated with autistic spectrum disorders offers an explanation for a propensity towards certain forms of aggressive or antisocial behaviour in particular novel or stressful situations. Young people with autism can have levels of the neurotransmitter serotonin that are lower than the norm (Chugani et al., 1999). Van Goozen et al. (2007: 162) demonstrate a link between serotonin and aggression and argue that low levels of serotonin 'lead to behavioural disinhibition'. In parallel, autism is associated with an 'increased reactivity of the HPA [hypothalamic-pituitary-adrenal] axis to stress and novel stimuli' (Spratt et al., 2012: 75). This can affect stress response mechanisms, inhibiting the appropriate assessment of emotional social cues, and potentially leading to 'hot-headed' behaviour, such as reactive aggression (Crockett, 2009).

- Deficits in executive functioning are apparent in the expression of a range of neurodevelopmental disorders. Executive functioning is an umbrella term describing the various cognitive processes used to undertake complex goal-oriented thought and action. It includes the initiation, planning and sequencing of tasks, concentration, responsivity to novel or changing circumstances, and the self-regulation of contextually appropriate behaviour (Meltzer, 2007; Funahashi, 2001). Deficits in executive functions are known to influence certain forms of antisocial behaviour by 'decreasing behavioral inhibition, impairing the ability to anticipate behavioral consequences and assess punishment and reward, [and/or] damaging the capability to generate socially appropriate behavior in challenging contexts' (Ogilvie et al., 2011: 1064). Such deficits have been particularly associated with aggressive forms of antisocial behaviour (Giancola et al., 2001; De Brito et al., 2013).

- Communication impairments are associated with a reduced capacity for effective social interaction. Social or pragmatic communication relates to conversational skills such as taking turns, selecting appropriate language for a given social context, and

> using appropriate non-verbal communication techniques. Poor social communication may result in difficulties understanding and expressing emotions, or the use of challenging behaviour as a means to communicate emotions (Ryan et al., 2013). Poor social communication is also associated with difficulties in developing coping strategies and understanding the perspective of others (Brownlie et al., 2004; Snow and Powell, 2011).

These illustrative examples offer a brief insight into the diverse and complex ways in which cognitive and emotional difficulties that are symptomatic of neurodevelopmental impairment might, in particular social contexts, give rise to the expression of aggressive or antisocial behaviour associated with criminality. In doing so they suggest that, whilst young people with neurodevelopmental impairments may commit crime for exactly the same reasons as other young people, there may also be certain additional triggers or particular patterns of behaviour related to cognitive and emotional deficits. Such an understanding of antisocial behaviour has strong resonance with Wikström's Situational Action Theory (SAT; 2004, 2006). Wikström highlights the interaction of individual traits and situational factors in the causation of criminal behaviour, emphasising the influence of biology, psychology and agency on a person's perception of alternative actions and choices in particular situations and interactions, such that in certain contexts a crime may be perceived as a viable and appropriate option even when a person is otherwise law-abiding. Such an understanding demonstrates a need to identify such deficits and to respond accordingly in seeking to reduce offending and reoffending. The concluding section argues that this suggests a need to reform youth justice practices based on the principles of Therapeutic Justice.

Increased exposure to social and environmental risk

In addition to cognitive and emotional deficits that are directly implicated in offending behaviour, it is also possible to identify a range of social or environmental risk factors for criminality that either affect or interact with symptoms of impairment. The influence of neurodevelopmental impairment may be more greatly realised among young people experiencing adverse social and environmental conditions. In parallel, neurodevelopmental impairment may increase the likelihood of exposure to social and environmental risk or increase susceptibility to a range of negative social experiences that further heighten risk of criminality. The following examples serve to illustrate these associations through consideration of three well established social and environmental risk factors for offending: negative peer group influences; problematic parenting practices; and educational disengagement.

Peer group influence

The previous section noted the relationship between social communication and social interaction. Deficits in social communication can influence the formation and maintenance of peer relationships. In particular, Baldry et al. (2011) argue that such deficits can promote a heightened desire in a young person 'to want to be accepted by their peer group', and therefore argue that such deficits can increase the risk of engagement in criminality, if associating with criminal peers. Conti-Ramsden and Botting (2004) suggest that young people with speech and language difficulties are approximately three times more likely to be 'regular targets for victimization' when compared to those without such difficulties. A similar

finding has been established in relation to ADHD. Gudjonsson et al. (2008) argue that young people with ADHD are 'more compliant in their temperament' and may therefore be more susceptible to peer influence, whether negative or positive, while Mrug et al. (2012) demonstrate that peer rejection predicts subsequent delinquency among this population. Such findings are further replicated among young people with a learning disability (Baumeister et al., 2008, Mishna, 2003). This suggests that young people with neurodevelopmental impairments may be readily targeted and manipulated by peers.

Parenting practices

Parenting a child with a neurodevelopmental disorder can clearly bring a range of challenges, particularly when that disorder is not diagnosed or support services are not adequate. Such challenges can inadvertently lead to the use of parenting practices that serve to increase the risk of antisocial behaviour and offending. For example, in presenting '*A Systematic Review of Parenting in Relation to the Development of Comorbidities and Functional Impairments in Children with Attention-Deficit/ Hyperactivity Disorder*', Deault (2010) demonstrates associations between 'oppositional and conduct problems' and 'a lack of positive parenting practices' and/or 'a negative or ineffective discipline style'. The relationship between parenting and child behaviour is not straightforward, however. It is possible that parents adopting such practices create 'pathogenic environments that cause or aggravate the disorder in the child' (Biederman et al., 1996: 445) or that the association is better explained by 'reciprocal interaction patterns between parents and children' whereby the behaviour of one increases the distress and therefore alters the behaviour of the other (Deault, 2010: 174). Nonetheless this illustrates how social and environmental responses related to parenting can serve to amplify the risk associated with an impairment such as ADHD.

Educational disengagement

The relationship between neurodevelopmental disorders and social and environmental risk is most apparent in relation to education. The links between various neurodevelopmental disorders and experiences of disengagement are well established. Disorders with onset early in childhood can impact on 'school readiness'. For example, a review of the literature by Daley and Birchwood (2010) suggests that the link between ADHD and educational difficulties is commonly established prior to starting school. A variety of symptoms associated with ADHD are seen to potentially inhibit 'school readiness': 'impulse control, attentional capacity and hyperactivity' are seen to 'hinder [the] ability to acquire crucial skills such as focusing on teachers, interacting with peers and authority figures, and learning emergent literacy, mathematics and language' (Daley and Birchwood, 2010: 456), while associated executive functioning deficits are found to cause 'problems with memory, reasoning, academic skills, conceptual development, [and] general cognitive ability' (Daley and Birchwood, 2010: 456).

Difficulties in pre-school and early educational experiences can have a cumulative effect on educational careers, with difficulties prior to the age of 8 leading to subsequent challenges in engaging with further stages of education. For example, Snow and Powell (2012) describe the cumulative challenges facing young people with oral language deficits, as experienced by those with particular communication disorders or learning difficulties. Recognising the shift from 'learning to read' to 'reading to learn' that typically occurs in the fourth year of formal education, Snow and Powell (2012) argue that those who have struggled to successfully engage with the formal literacy instruction of the first three years of

school may 'struggle enormously' in entering this second phase. 'For boys in particular, this is often a time (around 8 years of age) when externalising behaviour difficulties becomes apparent in the classroom' (Snow and Powell, 2012: 2). A potential association between early difficulties in engaging with education due to impairment and subsequent classroom misbehaviour is therefore apparent.

Neurodisability, discrimination and criminalisation

The discussion so far has focused on impairment as experienced through the symptoms and expression of specific neurodevelopmental disorders. The risk factors and relationships highlighted indicate the direct impact of functional impairments on behaviour and their indirect relationship with mediating and moderating social and environmental factors. In this section the focus shifts from experiences of neurodevelopmental impairment to experiences of 'neurodisability'.

The concept of neurodevelopmental impairment is distinct from that of neurodisability, as is made clear by analyses rooted in social model theory. A social model of disability is premised on the notion that it is society, through its norms, structures and processes, that disables a person with an impairment, rejecting any assertion that an impairment is inherently disabling. A clear distinction is therefore drawn between the concepts of impairment and disability:

> Impairment *is the functional limitation within the individual caused by physical, mental or sensory impairment.* Disability *is the loss or limitation of opportunities to take part in the normal life of the community on an equal level with others due to physical and social barriers.*
> *(Barnes, 1991: 2)*

A social model theory therefore 'redirects analysis from the individual to processes of social oppression, discrimination and exclusion' (Mulvany, 2000: 584), framing disability as the relationship between a person with an impairment and their environment.

From a social model perspective, 'neurodisability' therefore refers to the influence of disabling attitudes and practices experienced as a result of neurodevelopmental difference or impairment. A myriad of such experiences are apparent. Perhaps the most obvious example is in the experiences of disability implicit in the means by which neurodevelopmental disorders are defined, diagnosed and applied. This is recognised by Dowse et al. (2009: 33) who talk of

> *the array of social forces and relations that contribute to the production and shaping of these 'disorders', the formation and reformation of the boundaries of their diagnostic categories, and the ways remedial responses are driven in policy and practice.*

Diagnosis (or lack of) and classification determines the extent and nature of recognition and response to neurodevelopmental impairment, and is therefore key to a variety of experiences that can serve to increase risk of offending. In particular, as the discussion

above illustrated, the failure of the education system to identify and respond to the learning needs of young people with neurodevelopmental impairment may be the origin of potential disengagement with education. It may also be directly implicated in the onset of problem behaviour. Without an appropriate awareness of impairment, behaviour in the classroom may be attributed to the wrong underlying cause. A cognitive or social-affective impairment may therefore be misinterpreted as a behavioural problem and, on this basis, the child may attract inaccurate and inappropriate labels. Law and colleagues (2013: 491) provide an illustrative example in relation to communication difficulties:

> *What manifests in the classroom as a 'behaviour problem' (e.g. failure to negotiate appropriately with other children around access to equipment) may in fact be more appropriately described as a skill deficit, i.e. an inadequate repertoire of socially sanctioned linguistic skills to enable prosocial engagement with others and attainment of goals.*

Disabling processes are equally apparent in experiences of the criminal justice system. Various practices can be seen to increase the risk of criminalisation of young people with neurodevelopmental impairments. A lack of recognition of impairment and its impact on offending leads to a failure of services to identify and appropriately support those with a neurodevelopmental impairment, both prior to and on arrest (Hayes, 2002). This may be through insufficient knowledge or training regarding the needs of those with a neurodevelopmental impairment (McKenzie et al., 2000), a lack of appropriate assessment and screening tools (Hughes et al., 2012), or limited specialist service provision (Talbot, 2010). Youth justice interventions are often highly verbal or seek to 'tap important metacognitive skills, that is, 'thinking about one's own thinking', so that unhelpful beliefs can be identified and modified.' (Snow and Powell, 2012: 4) Such approaches assume typical levels of verbal and cognitive competence, and may therefore be inappropriate for some young people with neurodevelopmental impairment. Inappropriate interventions that young people struggle to engage with may increase risk of failure to complete an order, leading to possible breach and return to court for further sentencing.

An inability of the young person to effectively understand and engage in a legal process that is alien, confusing and misunderstood, can further serve to disable vulnerable young people, leading to an inability to participate meaningfully. Sanger et al. (2001) identify specific terminology and conceptual language that young people with neurodevelopmental impairment commonly do not understand, including 'penalty', 'verify', 'priority', 'caution', and 'crucial.' Snow and Powell (2005, 2011) highlight difficulties in narrative language skills (the ability to 'tell their story'), posing considerable barriers in the context of forensic interviewing techniques applied in court or by police. Low expressive vocabulary and poor narrative language skills can mean 'monosyllabic, poorly elaborated and non-specific responses that may be accompanied by poor eye-contact and occasional shrugs of the shoulders.' (Snow and Powell, 2012: 3) 'Such responses are likely to have a confirmatory effect on the biased impressions that many authority figures already hold about marginalised young people' (Snow and Powell, 2012: 3) and 'may be mistaken for deliberate rudeness and wilful non-compliance when being interviewed by police or cross-examined in court.' (Snow and Powell, 2011: 482) If interpreted as behavioural and attitudinal, communication difficulties may create 'additional disadvantage for the young person's passage through the justice system' (Snow et al., 2012: 502).

Implications for the reform of youth justice practices

The high prevalence of neurodevelopmental disorders among young people within custodial institutions poses encourages scrutiny of current approaches within youth justice systems. Whether considered from the perspective of the costly ineffectiveness of current youth justice provision to ensure prevention and rehabilitation or concern for the unmet needs and vulnerability of young people experiencing cognitive and social-affective impairment, the case for reform is clear. Firstly, it is necessary to question the appropriateness of current youth justice interventions to address offending behaviour among young people with neurodevelopmental impairments if the underlying causes of that behaviour are not adequately understood or responded to. Secondly, it is necessary to reflect on the processes and practices of criminal justice agencies that may serve to disable, disadvantage and criminalise these young people.

The previous three sections suggest a multitude of complex and interacting explanations for the disproportionately high prevalence of neurodevelopmental impairments among young people in custodial institutions. Taken together, these strands of analysis offer significant insights into how youth justice systems may be reformed so as to address the prevalence of neurodevelopmental disorders among young people in custody, utilising the principles of Therapeutic Justice and Justice Reinvestment.

Therapeutic Justice

A youth justice system governed by the principles of Therapeutic Justice 'aims to address the root of the criminal offending in order to provide a more holistic and less punitive method for the troubled groups within the society' (Luther et al., 2013: 2). Under such a system the principle of punishment is not the main concern of the courts. Instead the primary aim is to address 'the main factors – the roots – of what may lead the individual to come into contact with the law' (Luther et al., 2013: 12), whether these factors are economic, social or, in this case, psychological and developmental. This offers a 'more complete sense of justice' (Luther et al., 2013: 12), offering an opportunity to consider social as well as criminal concerns, and in doing so to ensure practice is directly governed by the requirements of the UNCRC to provide care, guidance and support.

The application of such principles to the offending of young people with neurodevelopmental impairments is clear. Such an approach recognises the propensity of young people with atypical neurodevelopment to certain forms of behaviour as well as to experiences of neurodisability, shifting the discourse from one of 'risk' to one of 'vulnerability'. It supports the application of emerging findings from clinical behavioural sciences to legal systems and interventions (Geary, 2013: 680; King, 2011: 21–2) through an 'emphasis on treatment and rehabilitation for all offenders.' (Geary, 2013: 691) Approaches rooted in Therapeutic Justice therefore recognise that, once involved in the criminal justice system, young people with a neurodevelopmental impairment have very different needs, and therefore require markedly different types of support in order to address offending behaviour and support rehabilitation.

Recognition of these varied needs directly contradicts current use of generic approaches which assume typical levels of verbal and cognitive competence, and which those with

atypical neurodevelopment struggle to adhere too, resulting in experiences of neurodisability fuelling further criminalisation. Instead Therapeutic Justice interventions must be responsive to specific needs and learning styles to address the underlying needs and vulnerabilities of young people with neurodevelopmental impairment when they engage in offending.

Guidelines on how to support young people with specific neurodevelopmental disorders are already established and can be readily utilised, including, for example, those published by the National Institute for Health and Clinical Excellence regarding ADHD (NICE, 2008) and autistic spectrum disorders (NICE, 2011). Specific guidelines for professionals working in the criminal justice system have also been developed. For example, the National Autistic Society (Siddles et al., 1997; NAS, 2001) advocate the use of the 'SPELL' principles, which require a 'Structured' and consistent approach, highlighting the 'Positive' abilities of an individual, 'Empathic' engagement, an immediate environment that is 'Low' in stress, and an approach that attempts to develop 'Links' with other agencies. There is growing evidence of the efficacy of individual therapeutic approaches to address and manage aspects of the disorder and associated risk of offending; for example, adapted cognitive behaviour therapy (Hare and Paine, 1997) and skills development using social stories and comic strip cartoons to address emotional recognition and help develop coping strategies to manage stress and conflict (Murphy, 2010).

Of course the implementation of such approaches requires an awareness of the cognitive and emotional needs of young people within the youth justice system through an improvement in the screening and assessment of neurodevelopmental impairment. Timely screening and assessment are essential to the successful identification and management of neurodevelopmental impairment and associated cognitive, emotional and behavioural needs, and to the recognition of the possible relationship between offending behaviour and these underlying needs. However recognition of need does not imply diagnosis of a disorder. Assessments should emphasise function and need, rather than diagnosis. Brief screening tools that can be utilised by non-clinicians to identify functional needs would support early identification of difficulties, as well as a differentiation of those who are at higher risk and require more detailed assessment. The discussion of the role played by family, peer groups and educational experiences also highlights the need for holistic assessments that recognise the influence and potential to alter these dynamic risk factors, rather than adopting a more medical, impairment focused approach (Coid et al., 2011; Mulder et al., 2011).

By encouraging responsive support and intervention, Therapeutic Justice is also alert to unintended consequences of legal decision making that may be 'antitherapeutic' (Wexler, 2000). Only by recognising and responding to the specific needs of young people with neurodevelopmental impairment can we counter experiences of neurodisability and criminalisation. This includes an awareness of the potential disabling influence of a young person's inability to engage in the legal process, and consequently to effectively defend themselves. This might suggest the need for specialist support and legal provision; however an awareness of the disabling processes and practices leading to potential criminalisation gives sufficient impetus for generic reform that is not therefore reliant on effective assessment. An understanding of the potential impact of neurodevelopmental impairment, even when it is not diagnosed in a young person, suggests a need for revised practices within the criminal justice system that do not assume normative cognitive competence or

understanding of procedures, and therefore support better engagement and access to justice for all young people.

Justice Reinvestment

Recognition of the influence of impairment on criminality also supports the application of principles of Justice Reinvestment, emphasising the potential efficacy of support through health, education and family support services in promoting prevention, early intervention and decriminalisation. Justice Reinvestment initiatives seek to reduce both the level of crime and the costs associated with current criminal justice processes and approaches. In particular, such initiatives involve the re-direction of funds away from expensive and usually inefficient custodial sentences and towards community-based alternatives which aim to address the underlying causes of criminal behaviour (Allen, 2007; Fox et al., 2011). This typically means that funding previously assigned to criminal justice processes and interventions is reinvested in alternatives outside of the criminal justice system (Howard League for Penal Reform, 2009).

To date the primary emphasis of Justice Reinvestment initiatives has been on area-based approaches, creating an 'incentive to decarcerate' by utilising 'financial incentives introduced so that in areas where prison numbers are reduced, the resultant cost savings could be invested locally' (Allen, 2008: 41). Crime and criminality are recognised to disproportionately affect communities in which economic, social, health and other community issues are more prevalent (Allen, 2007: 5). By giving control of the criminal justice budget to local areas, Justice Reinvestment seeks to encourage 'a greater emphasis on local ownership of those in trouble with the law and the development of local solutions' (Allen, 2007: 8), and in doing so 'to develop measures and policies to improve the prospects not just of individual cases but of particular places' (Allen, 2007: 5). This is achieved through the commissioning of local services, informed by the collection and analysis of data on crime and crime prevention and the application of models of effective practice.

Whilst emphasising area-based approaches, a similar framework can readily be applied to particular groups who are disproportionately vulnerable to criminal behaviour, including young people with neurodevelopmental impairments. The significant levels of neurodevelopmental disorders among young people in custody demonstrate the potential cost savings and the ineffectiveness of current approaches in addressing offending behaviour. An awareness of the developmental pathways of young people who offend supports the earlier recognition of neurodevelopmental impairment and subsequent reinvestment in community programmes intended to counter onset or continuation of problematic behaviour and prevent the development of secondary risk such as problematic family functioning, detachment from education or substance misuse.

In particular the available evidence would seem to suggest emphasis should be placed on family support, with a recognition that families are a key resource in supporting young people that in turn need to be supported if they are to maintain an effective level of care (Hughes, 2010). This might include greater investment in parenting support programmes known to be effective for young people with specific disorders, as well as continued engagement with parents enabling the provision of information regarding potential future

symptoms and expressions of particular disorders that can support the identification and appropriate response to emerging behavioural and functional difficulties.

Early educational support is also key. Many of the young people at risk of later antisocial behaviour can be identified early within the education system by their challenging behaviour or problems with academic engagement or attainment. The effective assessment and understanding of the behavioural, cognitive and emotional causes of early learning difficulties can support appropriate attempts to maintain educational engagement, with the aim of not only reducing offending but also promoting better educational outcomes. For example, identification of neurodevelopmental difficulties at primary school age can allow young people to be appropriately supported on transition to secondary school, thereby reducing the risk of disengagement and exclusion. Reinvesting funds from custodial interventions would support mainstream educational services to develop a transparent framework for assessing young people with behavioural difficulties for possible underlying neurodisability through access to specialist assessments from different professionals including educational psychologists, mental health specialists and speech and language therapists. This suggests a significant set of training needs across a range of services in order to ensure appropriate assessment and response. Staff in education services, family intervention projects, social services and primary health care settings, as well as in community youth justice services, require support to recognise and understand issues relating to neurodevelopmental impairment. Awareness raising across a range of practitioners and professionals will also support more appropriate referral to relevant specialist services for further assessment and intervention.

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