A framework for young people with neurodisability who engage in antisocial behaviour:
Introducing the PAM-NEXT

By

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Abstract

In recent times there has been greater recognition of the over representation of young people with neurodisability within youth justice systems worldwide. This poses a problem for practitioners and suggests that current treatments based on addressing dynamic risk factors may be inadequate for addressing the needs of this group. This thesis elucidates these challenges and extends the Predictive Agency Model (PAM; Heffernan & Ward, 2017) into the Predictive Agency Model-Neurodisability Extension (PAM-NEXT). This extension considers how neurodisability can contribute to a maladaptive developmental history for young people which, in some cases, can lead to exposure to dynamic risk factors. The PAM-NEXT provides a framework to consider how these factors can be operationalised within the process of antisocial behaviour for young people with neurodisabilities. The PAM-NEXT is then applied to composite cases of young people who have engaged in antisocial behaviour to demonstrate its utility. Lastly the PAM-NEXT is evaluated and future directions discussed. The PAM-NEXT can provide practitioners options to adequately target treatment for young people with neurodisability who engage in antisocial behaviour.

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Introduction

A sixteen-year-old boy stabs his high school teacher in the stomach with a compass after he is sent out of class. The case makes media headlines, he is labelled ‘a disturbed criminal’, and political opposition parties call for tougher sentencing as ‘violent teens are putting our schools at risk’. In court, it is revealed that he has experienced abuse and neglect in his home environment and that this was unknown to the school and social services. He is assessed, and he is found to have a poor ability to understand the thoughts and emotions of other people and is subsequently diagnosed with an Intellectual Disability (ID) and Attention Deficit Hyperactivity Disorder (ADHD). This may be an extreme case, but it begs the question; would this young person have behaved in this way if his needs were addressed earlier and he was given the support to develop pro-socially?

This thesis focuses on the population of young people with neurodisabilities and will identify problems with current conceptualisations of risk assessment, their links to treatment and, will extend a model to help professionals unpack how neurodisabilities may contribute to risk of youth engaged with antisocial behaviour. Neurodisabilities for this purpose are defined as a compromise of the central or peripheral nervous system due to genetic, pre-birth or, birth trauma, or illness that leads to impairment in functioning. This includes a wide breadth of neurodevelopmental disorders with symptoms inclusive of communication deficits, cognitive delays, emotional and behavioural problems, lack of inhibition and other specific learning difficulties (British Psychological Society, 2015).

The thesis will begin with a discussion of the problems associated with using risk assessments as treatment targets. Risk assessment, in this context, refers to validated tools which predict an individual’s risk for future criminal offending based on factors known to be associated with an increase in risk (Andrews & Bonta, 2010). Contemporary risk assessments frequently make use of dynamic risk factors that are changeable, which can increase or

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decrease over time or change due to the results of treatment. Risk assessments, and this type of risk factor, will be the focus of Chapter One. The thesis will then progress to discussing the challenges of working with young people with neurodisabilities and the relationship of these disorders to their antisocial behaviour. A theoretical framework of the process of antisocial behaviour will be extended to unpack the contribution of neurodisabilities (such as Intellectual Disability) to a maladaptive history and subsequent exposure to dynamic risk factors. This framework will then be evaluated, and conclusions will be developed.

Youth justice systems worldwide define the age of adult criminal responsibility to account for the ongoing development of young people. This is important as young people undergo a range of changes during adolescence through puberty inclusive of biological and psychosocial changes which increase the social influence of their peers among other developments. Adolescents during this period also tend to be involved in normative risk-taking behaviour during frontal lobe development (Richards, 2011). Criminal convictions and other official sanctions can put young people on a path of persistent antisocial behaviour (i.e., antisocial behaviour that extends into adulthood beyond what is considered normative for this age group; Moffitt, 1993) and because of this, and ongoing developmental changes it is useful to have a separate justice system for youth. Beyond the possible social and emotional costs, young people aged 13-18 years who engage in antisocial behaviour represent significant monetary costs to justice systems worldwide and were estimated to cost one billion pounds in the United Kingdom over one year for proven offences (United Kingdom National Audit Office, 2011). Therefore, it is imperative that the needs of young people are adequately addressed so that pro-social development is encouraged.

Despite the importance of addressing the needs that underlie the antisocial behaviour of young people, there continues to be challenges in treating specific needs with current conceptualisations of rehabilitation that use dynamic risk factors to target treatment. Dynamic

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risk factors are defined as changeable variables associated with an increase in the risk of recidivism (e.g., substance use and pro-criminal peers; Bonta & Andrews, 2017). Items that assess these factors are included in tools assessing the risk of future reoffending (Bonta & Andrews, 2017). Dynamic risk factors are commonly used as targets to address in treatment or group programmes but these have certain limitations (Ward, 2015). It has been suggested that basing treatment or referrals to programmes based on dynamic risk factors alone misses the important step of adequate assessments to examine what underlies and maintains the antisocial behaviour of young people. The first chapter will examine this in detail with reference to the development and critiques of risk assessment, and, its relationship to treatment for young people who engage in antisocial behaviour. In doing this, the first chapter will consider the question of the role of dynamic risk assessment and the gap in explanatory value and resulting implications for effectively meeting the needs of young people with complex needs. This will add to the theoretical understanding of dynamic risk factors with young people and their utilisation, as previously the literature has often discussed these problems with reference to adults who offended (e.g., Ward, 2015; Ward & Beech, 2015 etc.).

Following on from this discussion, Chapter Two will examine a group of young people with particular needs that are over represented in youth justice settings. This group of young people have neurodisabilities and can be at risk of long-term antisocial behaviour when other risk factors are present, and when their needs are not adequately addressed. Although it is not the focus of this thesis, it is important to note young people with disabilities in general are also highly prevalent in the youth justice system (e.g., Zhang, Barrett, Katsiannis & Yoon, 2011). Neurodisabilities, as defined earlier, covers a range of disorders including specific developmental and learning disorders (e.g., dyslexia, dyspraxia etc.) However, the current thesis will only focus on the more psychologically orientated

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disorders; Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), Foetal Alcohol Spectrum Disorder (FASD), Intellectual Disability (ID), and Traumatic Brain Injuries (TBI).

The second chapter will aim to define the problem of young people with neurodisabilities and their involvement with justice proceedings. It will also examine evidence of the challenges of navigating the youth justice system for this vulnerable group of young people which can, in some cases, contribute to incomplete sentences or orders. Later in the thesis, the involvement of this group of young people in youth justice will be examined and considered in terms of specific disorders previously mentioned and the implications resulting from these.

The third chapter will bring the identified gaps within risk assessment, and the treatment of young people with neurodisabilities involved with youth justice, together in a proposal to extend a previously developed framework. This chapter will detail a proposal to extend the Predictive Agency Model (PAM; Heffernan & Ward, 2017) into the Predictive Agency Model-Neurodisability-Extension (PAM-NEXT) to consider how neurodisability, under some circumstances, can contribute to a maladaptive developmental history and subsequent exposure to dynamic risk factors. This framework then operationalises how this maladaptive developmental history (inclusive of early difficulties resulting from neurodisability) manifests within the process of engaging in antisocial behaviour. This breakdown can be useful to inform a treatment plan with young people as the PAM-NEXT framework can help practitioners illuminate what is maintaining antisocial behaviour and what to target in treatment.

The PAM-NEXT is then applied to two composite cases of young people who have engaged in antisocial behaviour. It is anticipated that this framework will be useful for

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clinicians as it provides a framework for considering cases of individuals who engage in antisocial behaviour and will help inform effective treatment decisions. The PAM-NEXT may also be useful to use within treatment interventions with young people who engage in antisocial behaviour and to also identify situations that may put them at risk.

The final chapter will evaluate the proposed PAM-NEXT using previously developed theory appraisal criteria to consider its strengths and weaknesses as a framework. The thesis will conclude by providing recommendations and avenues for future research for the PAM-NEXT in addressing the needs of this vulnerable group and its other uses.

Chapter 1: Risk assessment

In the introduction it was raised that there may be issues with the current conceptualisation of risk and dynamic risk factors. This has subsequent implications for the treatment of young people who engage in antisocial behaviour and come into contact with the youth justice system. This chapter aims to elucidate the issues with dynamic risk assessment in relation to the assessment and treatment for young people who are involved in antisocial behaviour.

Risk factors and RNR

Dynamic risk factors or criminogenic needs are factors that are associated with an increased risk of reoffending such as substance use and pro-criminal peers (Bonta & Andrews, 2017). These factors were identified in a series of meta-analyses on the effectiveness of treatment and factors associated with a risk of reoffending with adults. This research programme developed into what is now referred to as the ‘what works movement’ and led to the development of the Risk Need Responsivity framework (RNR; Bonta & Andrews, 2017). RNR is an empirically based rehabilitation framework. The main tenets of this framework are that the risk of reoffending should be based on validated risk assessment tools that examine eight central risk factors, these are; history of antisocial behaviour, antisocial personality pattern, pro-criminal cognitions, pro-criminal peers, family/martial circumstances, school/work, leisure/recreation, and substance abuse (Bonta & Andrews, 2017). The central eight factors have been found to be most highly associated with a risk of reoffending. Previously these were broken down into the big four and moderate four as initial results found that the big four were most related to an increase in the risk of recidivism (Andrews & Bonta, 2010). Recent research with other offending groups however has found there was little distinction between them (Bonta & Andrews, 2017). The RNR Model

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revolves around three core principles of *Risk*, *Need* and *Responsivity* which will be briefly covered below.

The *Risk* principle states that the greatest intensity of treatment should be given to those assessed as having the highest risk of reoffending, with low risk cases given little or no treatment, as treatment can increase their level of risk (Bonta & Andrews, 2017). The second principle, *Need* stipulates that treatment focuses on dynamic risk factors or criminogenic needs associated with reoffending. Seven of the central eight (excluding history of antisocial behaviour) are dynamic risk factors and should be targeted under the need principle. In addressing the dynamic risk factors, little or no attention is paid to factors not associated with criminal offending. Non-offending needs, under RNR, refer to issues such as mental health, housing and other complexities that are not directly relating to the central eight factors (Bonta & Andrews, 2017).

The third principle, *Responsivity* is broken down into general and specific responsivity. General responsivity relates to delivering treatment in a style known to be effective (e.g., social learning). Specific Responsivity refers to making considerations within treatment to meet the individual needs and learning styles of those in treatment and includes motivation, cultural considerations and cognitive style and can mean addressing immediate non-offending needs so as to allow the individual to participate in treatment (Bonta & Andrews, 2017).

The RNR model has been found to be effective in the reduction of recidivism, with greater reductions occurring when more principles are followed (Bonta & Andrews, 2017). Within the RNR model some considerations are given to youth. For example, the strong influence of peers during adolescence can require greater attention to the risk factor of pro-criminal peers, compared to when working with adults (Hoge, 2016). Other factors have been

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adapted to consider developmental stage such as the emphasis on dysfunctional parenting in lieu of family and marital circumstances (Hoge, 2016). There is also evidence for the strong influence of school (Grieger & Houser, 2013). To date, RNR has been the pre-eminent framework in the field of criminal justice psychology including youth justice. Its principles have been found to be effective when implemented correctly (Hoge, 2016). Despite this, there are gaps in the conceptualisation of dynamic risk and the connection to treatment that will be discussed later in the chapter.

Good Lives Model.

Ward and colleagues (e.g., Ward, Mann & Gannon, 2007; Ward & Maruna, 2007) developed the Good Lives Model (GLM). This was in response to the emphasis within RNR on avoidance goals (e.g., not offending) rather than approach goals which encourage an individual to work towards prosocial behaviour. The GLM is a strengths-based rehabilitation framework that aims to reduce risks of reoffending through developing an individual's unique strengths. As a result, it advocates for a more indirect approach that emphasises agency in order to reduce risks rather than taking a direct approach that targets dynamic risk factors in treatment. The GLM conceptually shows promise with young people, through its emphasis on strengths and individual treatment, which potentially could address some of the problems discussed later in the chapter (Fortune, 2017). The GLM has been utilised in the treatment of young people from adolescents in treatment for sex offences (Griffin, 2013), to girls detained in a youth justice facility (Von Damme, Hoeve, Vermeiren, Vanderplasschen & Colins, 2016). To date, there has been limited research in using the GLM framework in general (Neto, Carter & Bonnell, 2014), inclusive of youth, aside from the above and theoretical discussions (Fortune, 2017).

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Protective factors.

Protective factors have been a recent addition to the assessment of dynamic risk and while there are some issues in their conceptualisation, they have been defined as variables that are predictive of offending not being present in the general population or, variables that are associated with the absence of reoffending for people with offence histories (Cording & Christofferson, 2017). Protective factors have been included in risk assessment tools such as the Dynamic Risk of Offender Re-entry (DRAOR; Serin, 2007) which has been validated on a sample of 17-year-old youth in New Zealand (Muirhead, 2016). Risk assessments specific to protective factors have also been developed such as the Structured Assessment of Protective Factors for violence risk (SAPROF; de Vogel, de Ruiter, Bouman & de Vries Robbe, 2009). The SAPROF has been found to add incremental predictability when used in addition with a risk tool such as the Historical Clinical Risk Management-20 (HCR-20) with adults who have offended (de Vries Robbe, de Vogel, Koster & Bogaerts, 2015). There are, however, some issues around the conceptualisation and the effects of protective factors. Some tools consider both the assessment of risk and protective factors, such as ‘prosocial peers’ but these have been said to be simply reverse coded dynamic risk factors with ‘antisocial peers’ being the equivalent risk factor (e.g., Heffernan, 2015). This is a problem within the context of risk assessment as they can be measuring the same item, although there are also indications that in some cases protective factors may have a buffering effect against risk factors (Cording & Christofferson, 2017).

It is important to note there are factors that are protective for child and adolescent development (also known as promotive factors) which can protect against antisocial behaviour. These include; high parental supervision, high IQ and high educational attainment, which can protect against the exposure of risk factors in reducing the likelihood of long-term antisocial behaviour (Farrington, Ttofi & Piquero, 2015). Ward (2017) further contributes to

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the conceptualisation of protective factors and their role in offending and desistance by integrating them into a framework of agency. This framework has been expanded; its extension as the Predictive Agency Model (PAM; Heffernan & Ward, 2017) will be discussed in more detail in Chapter Three.

Despite some value of protective factors in the explanation of the development of antisocial behaviour, there can be problems when attempts are made to incorporate these into the assessment of dynamic risk, particularly when these are poorly integrated into risk tools. Despite the challenges identified above, the focus of this thesis, and most of the remaining discussion, will be on examining dynamic risk factors contained within dynamic risk assessments as these are the most widely utilised and researched. Dynamic risk factors are changeable factors used within dynamic risk assessment that have been found to be associated with an increased risk of future reoffending (Andrews & Bonta, 2010). The limitations of this type of risk assessment will be considered specifically in relation to treatment, particularly for young people with neurodisabilities. This discussion will be expanded upon further below and in later chapters.

Risk assessment

It is important to consider the origins of dynamic risk factors in the context of their development primarily as items within risk assessment tools. Notably, risk assessment is used throughout the criminal justice system as tools that predict the risk of future reoffending inform most aspects of the process from sentencing, eligibility of treatment, the level of supervision and parole decisions (Bonta & Andrews, 2017). Specific tools developed for youth are also used for these purposes. Andrews, Bonta and Wormith (2006) have previously discussed the development of risk assessment tools through several generations over time and this is expanded upon below.

THE PAM-NEXT Generations of risk assessment.

The first generation of criminal risk assessment involved the unstructured clinical judgements of mental health professionals asked to provide a judgement based on their professional expertise. Overall, these were provided without an evidence base and were found to be highly problematic, with professionals unable to provide consistency or accurate risk predictions (Andrews & Bonta, 2010).

The second generation of risk assessment saw the introduction of static risk assessment tools. These tools included historical or static factors (e.g., sex of the individual and offending history) that have been empirically linked with an increased risk of recidivism. This second generation of risk assessment tools marked a change from unstructured judgement to tools which could be administered easily with little cost and high levels of accuracy. For example, the Static-99 (Hanson & Thornton, 2000) is a static risk assessment tool designed for assessing risk of sex offending and only examines unchangeable static factors associated with increases in risk. These second generation tools however, although valid, are limited as they are unable to account for any changes over time in an individual, such as changes that might occur with treatment.

The third generation of risk assessment saw the introduction of risk/need tools which measured dynamic risk factors that are changeable factors (e.g., antisocial peers and substance use) associated with reoffending. This generation of tools were able to consider changes that occur within an individual that lead to a change in risk over time. For example, the Level of Service Inventory-Revised (LSI-R; Andrews & Bonta, 1995) assesses both static and dynamic risk factors and can be used by professionals to inform decisions about a case (such as the intensity of management or options for treatment programmes). These tools have been found to have incremental predictability over static risk assessment tools but require specialised training to use (Andrews et al., 2006).

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The fourth generation of tools provided a more transparent link between risk assessment and practical utility in case management with options to address the identified risk factors present within an individual. For example, the Level of Service/Case Management Inventory (LS/CMI; Andrews, Bonta & Wormith, 2004) assesses static and dynamic risk factors and highlights treatment targets and responsivity factors to consider for an individual. Like the third-generation tools, these provide incremental predictability above static risk assessments but require specialised training for their use (Andrews et al., 2006).

Youth risk assessment tools.

Dynamic risk assessment tools for youth were developed based on the same literature as adult dynamic risk assessment tools. The use of dynamic risk factors in the assessment of risk for youth has been found, like those with adults, to add incremental predictability over static risk assessment (e.g., Grieger & Houser, 2014; Muirhead, 2016; Olver, Stockdale & Wormith, 2009).

One of the most well-known assessment tools, developed for young people, is the Youth Level of Service Case Management Inventory (YLS/CMI; Hoge & Andrews, 2011) which was modelled after the adult equivalent, the LS/CMI. This tool consists of 42 items that are categorised into the risk domains of family, peers, education, substance abuse, attitudes, personality and leisure. An individual is then rated as low to high risk in each domain based on the scores of items. A total risk score is also provided based on the sum of all the items. This then can be used to categorise the total risk of young people and inform treatment planning. The tool also allows for assessors to identify strengths for young people and includes tick boxes for special considerations or responsivity factors that may be present for young people, such as mental health needs. The YLS/CMI has been found to be effective in predicting recidivism, with moderate to strong predictive accuracy, for male and female

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youth with total scores also correlated to the number of subsequent offences (Olver, Stockdale & Wormith, 2014).

Other specific tools are available, developed for different purposes, to measure risk by allowing structured professional judgements based on factors within instruments to assess risk rather than a sum total of items (e.g., The Structured Assessment for Violence in Youth: SAVRY; Borum, Bartel & Forth, 2005). These tools are used for specific purposes and the criticisms, as discussed below, mostly do not apply to this type of risk assessment tool.

The above risk assessment tools have been found to be predictive of future instances of antisocial behaviour and have provided some evidence of change in dynamic risk factors over time (Mulvey et al., 2016; Viljoen, Shaffer, Gray & Douglas, 2017). For example, a study used trained raters to assess a sample of young people on probation in Canada on the YLS/CMI and SAVRY (Viljoen et al., 2017). Some evidence was found for change over time on both measures during a 12 month follow-up period, but change in the antisocial peers risk factor was the only change associated with a reduced risk of future antisocial behaviour.

Overall, risk assessment tools developed for the antisocial behaviour of youth have been found to be effective. However, as will be expanded upon below, there may be some issues in using items from these assessments as treatment targets.

Problems with dynamic risk assessment

Despite the prevalence and utility of dynamic risk assessment tools, in the past few years, criticism has arisen around their ability to explain offending and subsequent use as treatment targets (e.g., Ward & Fortune, 2016). These critiques have been explored through the dynamic risk assessment with adults, but the same issues apply to the assessment with young people as they have been developed in the same fashion.

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One of the issues that limit the explanatory value of dynamic risk assessment stems from their development, which was to improve upon the validity of static risk assessment tools in order to produce more accurate risk assessments. Dynamic risk assessment tools are designed to predict the risk of reoffending through the *sum* of dynamic risk items, in most cases. Dynamic items used in these actuarial risk assessment tools were chosen for their predictive ability rather than their explanatory value in using them to inform treatment, i.e., they have a statistical relationship with the outcome of interest (Ward, 2015). Ward (2015) argues however, that dynamic risk factors are *composite constructs* because they consist of several different components that are loosely related. For example, the central eight factor of *antisocial personality pattern* (Bonta & Andrews, 2017) illustrates this through its inclusion of poor problem solving, impulsivity, and general aggression all within the same factor. This is because the individual items included were identified through meta-analyses because of their association with reoffending. These items were later combined within dynamic risk assessment tools, which have found to be predictive of recidivism. This impedes the ability of dynamic risk factors to be interpreted at the individual level and creates a theoretical gap in their ability to explain reoffending.

In another criticism, Ward and Beech (2015) highlight that dynamic risk factors attempt to be both casual and descriptive but are in fact merely descriptive of an underlying cause. The authors then unpack dynamic risk factors for sexual reoffending and link them to clinical attributes, similar to a case formulation, which could then be developed into an explanatory model. For example, relating the risk factor of self-regulation deficits back to the clinical attribute of negative affect. In doing this, they show that on their own, dynamic risk factors are not causal in themselves and require further unpacking in order to understand causality. Although this was examined in relation to adult sexual offending, the same process can be applied to youth antisocial behaviour in linking the descriptions of dynamic risk

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factors to the function this has for the individual. For example, the dynamic risk factor of pro-criminal peers could indicate a social deficit in relating to more prosocial peers, or educational difficulties leading to school dropout and drift towards pro-criminal peer groups during inappropriate leisure time. Therefore, there are problems when attempting to address individual dynamic risk factors as they present information descriptively without an awareness of the causes underlying them. Thus, it is imperative that the underlying causes that have contributed to the presence of risk factors are examined in order for these to be adequately addressed. This will be expanded upon further in later chapters.

Dynamic risk factors have also been criticised for their inclusion of legal and ethical norms (Ward, 2015), i.e., the inclusion of items that correspond to societal definitions of crime and offending, as crime is socially constructed. For example, the risk factor of pro-criminal attitudes, which are attitudes supportive of antisocial behaviour, can be seen in young people who hold the (erroneous) attitude of entitlement to shoplift as shopkeepers would have insurance. This particular attitude is defined by its illegality and cannot be explanatory of the behaviour itself. These are useful in the assessment of risk in accounting for an individual's propensity to violate these norms through engaging in antisocial behaviour, but they cannot, by definition, be causal. Importantly for youth, it is necessary to examine what is maintaining these propensities to act or think in this manner in the young person's system. For example, cognitive distortions supportive of antisocial behaviour could be maintained by other pro-criminal peers and a sense of personal entitlement. Therefore, these other factors would have to be examined and addressed in tandem in order to reduce the risk of future antisocial behaviour.

It is important to examine the causes underlying the broader issues identified through a dynamic risk assessment in order to adequately address what is maintaining the behaviours of a young person and maximise the change that occurs. This is discussed by Durrant (2015)

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who argues for an evolutionary developmental approach to understanding risk, highlighting some of the overlap in initial risk factors for offending and those associated with reoffending. In order to reduce reoffending, Durrant (2015) argues that developmental factors underlying the dynamic risk factors must be addressed. Mulvey (2014), making a similar argument, discussed the change in the influence of risk factors over adolescence. For example, Mulvey mentioned the changing influence of peers and the developing level of awareness for consequences of actions as young people age. It was then discussed how this could inform risk assessment as these changes occur as young people get older; it is known that engaging in antisocial behaviour can become less reinforcing for some youth as they age, and they subsequently move away from antisocial peers (e.g., Moffitt, 1993). At this stage, the validated risk assessment tools for young people, although normed for different age groups, do not consider weighting risk factors.

Dynamic risk factors are also inter-related. For example, antisocial cognitions and antisocial peers likely feed into each other to increase the level of risk for a young person. This is particularly important for the assessment of risk with young people due to the ecological setting the young person is in at the time (e.g., Loeber, Burke & Pardini, 2009). For example, a poor familial situation may lead to substance use if a young person is offered substances or if use is normalised within the home environment. Therefore, in order to effectively target these needs, an examination of what is maintaining these behaviours, and the identification of causes behind the instances of antisocial behaviour, is required. This cannot be done through targeting individual risk factors with treatment directed to the young person alone.

As shown, there are problems that have previously been identified in the literature regarding the conceptualisation of dynamic risk. These problems limit our ability to use dynamic risk factors in a treatment context. Further examination is required in order to target

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the causal mechanisms underlying young people's antisocial behaviour. Previously, however, these issues have not been examined in relation to youth and subsequent chapters will reconsider dynamic risk with young people with neurodisabilities who engage in antisocial behaviour with needs that currently do not appear to be adequately addressed. Some effective treatment programmes do exist, and these tend to target the system that the young person is a part of. These effective types of treatment programmes are discussed in the next section.

Treatment

Effective treatments for young people involved in the youth justice system have been developed and recognised as 'blueprint programmes' by the United States Office of Juvenile Justice (Salekin, 2015). These include Treatment Foster Care Oregon, Multisystemic Therapy and Functional Family Therapy which are discussed below.

Treatment Foster Care Oregon (TFCO, formally known as Multidimensional Treatment Foster Care; Chamberlain, 2003) has individual modules for the parents while young people who have offended are supervised and treated by highly trained foster parents. During the programme, young people's relationships with their families are supported and they are slowly reintegrated into their families as part of ongoing therapy.

Multisystemic Therapy (MST) uses highly trained treatment staff to work with the young person and their environment including schools, families, peers and the social network (Henggeler, 2012). Treatment is individualised to target aspects of the young person's system that are maintaining the problematic behaviour. Therapy is intensive, and staff are available on call for the duration of the treatment.

Functional Family Therapy (FFT) is a family orientated programme designed to encourage youth and their families to address issues with communication, interaction and problem solving (Alexander & Robbins, 2010). FFT views the young person's antisocial

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behaviour as resulting from a system of dysfunctional family relationships. The purpose of the therapy is to teach new skills to replace the maladaptive practices.

In a comprehensive review of evidence-based treatment programmes (McCart & Sheidow, 2016), MST and TFCO were rated as well-established treatment for young people with serious antisocial behaviour. This is due to the multifaceted approaches these therapies take in addressing the antisocial behaviour within a social ecological framework. FFT was rated as a probably efficacious treatment as the evidence for positive outcomes was not as strong as the other two programmes. Importantly, these three programmes address both the young person and aspects of their system, whereas treatments that only focus on one or the other are not as effective in reducing the risks of future antisocial behaviour.

Treatment Issues.

It was discussed earlier that RNR is the most widely used rehabilitation framework within both youth and adult justice systems and has been found to be effective. However, there are problems in the conceptualisation of dynamic risk factors which may impact on youth more, as targeting treatment towards single factors does not address the system maintaining the behaviour. As such, in the case of young people especially, there needs to be an examination of what is maintaining the behaviour.

There are additional problems when RNR is not implemented correctly as this reduces the impact of treatment (e.g., Polaschek, 2012). RNR is designed to be a treatment framework and can be misused when programme designs are not individually based and may instead be developed as ‘one size fits all’ programmes for group based therapy (Ward, Melser & Yates, 2007). Some of the difficulties in applying RNR to a youth justice setting were identified in research that involved interviewing youth probation officers about their experiences of implementing RNR in the community (Haqanee, Peterson-Badali & Skilling, 2015). This

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study identified several issues including the lack of available programming, and difficulties in addressing needs over a short period of time with an unmotivated group of young people.

Problems in prioritising the range of needs the young people presented with were also noted.

This reflects some of the problems currently experienced by programmes working with young people, who are finding that services based on RNR are failing to address the vast needs of this very complex group. The current application of RNR to treatment programmes for young people are unlikely to adequately address this group's complex needs over a short time frame, as many of this cohort may require long-term specialised individual treatment. In a separate study of youth case files, greater reductions in dynamic risk were found when individual needs were met in treatment (Peterson, Badali, Skilling & Haqanee, 2015). However, in some cases, youth eligible for treatment were not always receiving it. As previously mentioned, when individual needs are addressed treatment can be effective. This study also demonstrates one of the problems that occurs when RNR is poorly implemented and under resourced which means that needs go unaddressed.

Similar to this, there are problems when youth justice systems grounded in RNR lack adequate services to refer young people to in order to address certain risk factors. For example, in the case of substance use, where young people often do not get access to treatment in the community despite substance use being a common risk factor for future antisocial behaviour (Hogue, Henderson, Ozechoski & Robbins, 2014). This limitation in service availability likely adds to the complexity of these young people if they miss out on available programmes when there may not be adequate service provision for the individual treatment of their needs either. This shows a limitation of RNR grounded youth justice jurisdictions when a *Need* for a young person is identified without the adequate service provision to meet this particular need.

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In addition, another study identified one of the premises of RNR that did not appear to be working. This particular study found no association between changes on the YLS/CMI or SAVRY and treatment received while young people were on probation (Viljoen et al., 2017). The authors note that this may be due to the quality and availability of treatment. This shows some of the difficulties that can occur in using dynamic risk assessment to refer young people to treatment, particularly if measurable differences are not made in risk assessments despite participation in treatment. Importantly, for the current discussion, this shows a limitation in the link between assessments, based on dynamic risk and treatment.

These studies suggest there are gaps within some youth justice jurisdictions that, despite their grounding in RNR, may fail to consider individual needs. These programmes are unlikely to be as effective, especially as young people within youth justice systems tend to have complex needs that are unlikely to be addressed without an adequate assessment of individual needs and treatment planning. These studies also highlight the challenges of resourcing the services needed for young people. Gaps in treatment, in the community, also have implications for the escalation of young people into institutions, if needs are unmet and they subsequently reengage in antisocial behaviour. The next section examines research specific to the young people in justice institutions as these environments can exacerbate already present problems and are often where young people escalate to when interventions in the community have been unsuccessful.

Youth in institutions.

Young people in youth justice institutions have been found to have high rates of disadvantage, such as high prevalence rates of mental health, addiction, trauma and education deficits (see Lambie & Randell, 2013 for a review). This presents unique challenges, especially when there is evidence that very few young people in institutions who are eligible for the treatment of their antisocial behaviour actually receive treatment (e.g., Liddle, Dakof,

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Henderson & Rowe, 2011; Yazzie, 2011). When treatments are available, programmes that are conducted in institutions can be as effective as treatment in the community (Lipsey, 2009).

There are ethical concerns for young people in institutions that need to be considered, such as their ability to consent to treatment when treatment can have advantages such as early release. This can raise issues of whether a young person has given their informed consent when there is the extrinsic motivation for early release (see Ryberg, 2015 for a discussion). In addition, in some cases, youth justice institutions can have iatrogenic effects, such as through the interaction with other antisocial peers, and research has found that longer stays do not reduce recidivism (e.g., Mulvey, 2011).

This demonstrates a further issue that, despite the prevalence of evidence-based practise, there remain gaps in addressing the needs of young people who come into contact with the youth justice system. These issues become more salient within the residential environment as there may have been opportunities to address these needs within the community without the ‘snare’ of institutionalisation. These issues will be expanded upon further in later chapters with a more thorough discussion of specific neurodisabilities that are disproportionately present within the youth justice system and the challenges that this imbalance may pose.

Conclusions

Although risk assessment has been an invaluable development in youth justice and has led to fruitful research, problems have been identified when dynamic risk assessment directly informs treatment. This is due to the limitations of dynamic risk assessment and the problems that have been identified that limit their usefulness in inferring causality. These include the inclusion of legal and ethical norms, their original intention to identify what

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statistically increases risks, their descriptive nature and the overlap between different items of dynamic risk. These problems in conceptualisation impede the ability of dynamic risk factors to account for individual causes, especially when treatment programmes for young people are based on them, without considerations for what is behind the individual causes or mechanisms of risk.

There are further problems in the utility and implementation of treatment that can also reduce its effectiveness, particularly when individual needs are not met, or if programmes to address antisocial behaviour are not available. Alternative frameworks and examples of effective interventions do exist, but these can be expensive to introduce and require high treatment fidelity.

Despite these theoretical and practical problems with dynamic risk assessments and treatment, individual dynamic risk items continue to be prevalent and used as treatment targets with both adult and youth justice populations. This is an issue as there are questions around their abilities to cater for and address young people with certain disorders that may, on some level, have contributed to the development of their antisocial behaviour in addition to other factors. This will be discussed and examined more closely in subsequent chapters.

Chapter 2: Neurodisabilities and antisocial behaviour

The previous chapter discussed the challenges and complications that can arise when dynamic risk assessments are used to inform the targets for treatment for young people involved with youth justice. The general failure to address the causes of antisocial behaviour will be discussed with reference to a select group of young people with complex needs as a result of their neurodisability. Particular attention will be paid to the overrepresentation in the youth justice population, and evidence that suggests that when needs are not addressed, individuals with neurodisabilities are at risk of long term involvement in antisocial behaviour as they age. International research suggests that young people with early onset difficulties, such as an Intellectual Disability, are known to be disproportionately represented within youth justice jurisdictions, and can be associated later with persistent antisocial behaviour, especially when combined with a maladaptive care environment (e.g., Davis, & Mounce, 2012; Hughes, Williams, Christabesan, Moffit, 1993). This association is discussed in greater detail below.

The Developmental Taxonomy Theory

Moffitt (1993) developed the influential Developmental Taxonomy for young people who engage in antisocial behaviour, describing two primary groups; the Life Course Persistent (LCP) and the Adolescent Limited (AL) group based on a birth cohort of New Zealand children from Dunedin. The LCP group are known to have a poor temperament (caused by genetic factors) which in conjunction with their developmental delays elicit negative behaviours in adverse parenting environments. The LCP group continues to have problems as they begin school, achieving poor academic outcomes, exhibiting conduct issues in class and associating with antisocial peers. During adolescence, this group has early access to adult roles and responsibilities such as independence, sexual relationships and financial freedom. Moffitt describes these as ‘adult goods’, which are revered by these young people’s

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peers and gained in part through antisocial behaviour and other factors such as poor parental supervision. However, as the LCP group grows older, their opportunities to develop pro-socially become increasingly limited through snares such as criminal convictions, disruptions in schooling, few pro-social peers, and antisocial attitudes leading to antisocial behaviour that persists into adulthood.

The AL group are not known for having the early difficulties that Moffitt describes for the LCP group and only engage in antisocial behaviour as they enter adolescence. Moffitt (1993) attributes the late onset of antisocial behaviour to the 'maturity gap' whereby the AL group are biologically mature, but do not have legitimate means to access 'adult goods' during adolescence. They therefore mimic the behaviour of the LCP group who they see as having these 'adult goods'. However, as the AL group grows older, they develop legitimate means to acquire 'adult goods' and the influence of the maturity gap wanes. They often subsequently desist between the end of adolescence and early adulthood, with little or no intervention. However, a minority of the AL group can become part of the LCP group if they acquire snares such as a criminal record or a prison term which hinders them from desisting. Notably, Moffitt suggests that these groups cannot be distinguished based on their antisocial behaviour during adolescence. The LCP group can only be identified if the developmental history is examined and early conduct problems identified.

Moffitt also described a third group, the abstainer group, who are not affected by the maturity gap and do not engage in antisocial behaviour during adolescence. Initially this group was described as unusual (Moffitt, 1993) but, in later work, this group are described as having developed normally despite initially coming across as socially reserved. This group may also have been living in isolated communities, or had religious backgrounds that limited the effect of the maturity gap and interactions with LCPs (Moffitt, 2006).

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The taxonomy has been fertile and supported through longitudinal research with youth in other jurisdictions (Moffitt, 2006). This includes the United States (Fanti & Henrich, 2010; Jackson & Beaver, 2016), Australia (McGee et al., 2015), and Sweden (Bergman & Andershed, 2009).

Some of these studies have identified additional groups, such as the childhood limited group, who had early conduct problems that may have been on the start of an LCP course but recover by adolescence (e.g., Lopez-Romero, Romero & Andershed, 2015). Secondly, a late onset group have been identified, who began and continued to engage in antisocial behaviour past adolescence (Jolliffe, Farrington, Piquero, MacLeod & van de Weijer, 2017) and an adolescent onset group who develop conduct problems and subsequent long term antisocial behaviour during their teenage years (Assink et al., 2015). Often these groups are in addition to the core LCP and AL groups described by Moffitt's taxonomy.

Some have criticised the Developmental Taxonomy (e.g., Skardhamar, 2009). For example, Skardhamar (2009) presents a critique of the taxonomy around whether there are only the two types of individuals who commit antisocial acts, and the limited explanation of learning of antisocial behaviour by the LCP group compared to the AL group. Some researchers also argue that the developmental taxonomy does not consider more social factors such as socio-economic status (e.g., Jackson & Beaver, 2016). Important for the current discussion, Hughes (2015) critiques the taxonomy arguing it can be homogenous in its definition of early difficulties, and is unable to consider acquired difficulties post childhood, such as Traumatic Brain Injuries (TBI). This is a valid criticism as the developmental taxonomy makes the assumption that neuropsychological deficits are only important in the antisocial behaviour of the LCP group but there are instances when adolescents may acquire neuropsychological difficulties during adolescence. Such would be the case for someone with an acquired TBI which may contribute to later persistent antisocial behaviour and

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membership of the LCP group without difficulties during childhood. Despite this limitation, in most cases, evidence supports Moffitt's (1993) typologies, albeit with some additional groups.

Early difficulties and antisocial behaviour.

Moffitt, Lynam and Silva (1994) examined the LCP group in greater depth examining neurological dysfunction and later antisocial behaviour. Several neuropsychological tests were administered at 13 years old, such as the Wechsler Intelligence Scale for Children (WISC), the Wisconsin Card Sorting Test and other memory and spatial tasks. They found that at 18 years old, the young people who had the poorest neuropsychological scores at 13 years self-reported the highest rates of delinquency. This suggests that neurodisability could increase the risks of a young person belonging to the LCP group when these needs have not adequately been addressed.

Other research discusses the association between poor executive functioning and antisocial behaviour. In their meta-analysis Ogilvie, Stewart, Chan and Shum (2011) explored executive functioning in adults and young people who had engaged in antisocial behaviour compared to community samples. They found a low to medium overall effect size ($d = .44, p < .001$) for executive functioning between those who engaged in antisocial behaviour compared to community samples. This means that there was an association between poorer scores on executive functioning measures and involvement in antisocial behaviour for adults and young people. Although this study did not specifically examine neurodisability, it is possible that results of the executive functioning tests in the antisocial behaviour groups may indicate aspects of broader difficulties, with some possibly related to neurodisability.

In contrast, some evidence indicates there might be few differences in neurocognitive abilities or levels of neurocognitive deficits between the LCP and AL groups described by

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Moffitt (Assink et al, 2015; Calder & Goodyear, 2013; Fairchild, van Goozen, Jolliffe, Farrington, Piquero, Loeber & Hill, 2017). For example, Assink et al. (2015) found only a small effect of neurocognitive factors in a meta-analysis comparing LCP and AL groups ($d = .243, p < .001$), suggesting that cognitive risk factors may play a role in both groups or, alternatively, their interaction with a disadvantaged environment is what leads to LCP behaviour. Similar conclusions were suggested in a review exploring Moffitt's theory which discussed the possibility that young people with neurocognitive vulnerabilities may be protected by supportive environments during childhood (Fairchild et al., 2013). During adolescence, however, they may develop adolescent onset conduct problems, with increased exposure to risk factors such as antisocial peers and reduced parental supervision (Fairchild et al., 2013).

These reviews show that neurocognitive deficits may play a role in the antisocial behaviour of young people in both groups, to different degrees. This explanation may also be able to account for the criticism discussed above by Hughes (2015) in regard to TBI and acquired difficulties during adolescence. These acquired difficulties may contribute to late onset long term antisocial behaviour, although this group may have been exposed to less risks compared to the traditional conceptualisation of the LCP group by Moffitt (1993).

Importantly, the number of risk factors present may distinguish young people who persist with antisocial behaviour into adulthood rather than unique risk factors for ALs and LCPs.

Overall, there is evidence that cognitive deficits in general and/or early difficulties in childhood may be related to youth antisocial behaviour. These difficulties are likely to be the result, in part, of neurodisability and may in some cases increase the likelihood of membership of belonging to the LCP group and subsequent long term antisocial behaviour. The relationship between these specific disorders and their association to the antisocial behaviour of young people is discussed in the following sections.

THE PAM-NEXT Attention Deficit Hyperactivity Disorder (ADHD)

ADHD is characterised by interferences in functioning or development caused by a persistent pattern of inattention and/or hyperactivity (American Psychiatric Association (APA), 2013). The Diagnostic and Statistical Manual for Mental Disorders 5th edition (DSM-5; APA, 2013) reports an overall community prevalence of 5% of children and 2.5% of adults but, like other neurodisabilities, it has been found to be over represented in the youth justice system. A recent meta-analysis reported a prevalence of ADHD in incarcerated adults and youth of 30.6% (Young, Moss, Sedgwick, Fridman & Hodgkins, 2015). ADHD has also been found to be 3-10 times more common in secure facilities compared to community samples and is often comorbid with disorders such as Oppositional Defiant Disorder and Conduct Disorder (Connor, Ford, Chapman & Banga, 2012; Noordermeer, Luman & Oosterlaan, 2016).

ADHD and Risk.

A study of youth aged 12-18 years in Washington, with and without ADHD, were compared on a risk assessment tool and later recidivism (Van der Put, Asscher & Stams, 2016). This research found young people identified with ADHD and other co-morbid difficulties were most likely to have longer histories of antisocial behaviour, a higher risk score and were more likely to re-engage in antisocial behaviour overall. The co-morbid group had the highest risk overall, followed by young people with ADHD alone. Finally, the comparison group (without diagnosed ADHD) were assessed as the lowest risk and least likely to re-engage in antisocial behaviour during the follow-up period (Van der Put, Asscher & Stams, 2016). This suggests that young people with ADHD may have more dynamic risk factors present, which then contributes to their later re-engagement of antisocial behaviour compared to young people without ADHD.

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Symptoms of ADHD can also be associated with early onset and persistent antisocial behaviour (e.g., Bergman & Andershed, 2009; Indig, Frewen & Moore, 2016). In an Australian sample of young people in detention with an average age of 17 years, those with ADHD had more previous incarcerations and had first been in a youth justice facility at an earlier age than those without ADHD (Indig et al., 2016). The hyperactivity scores of 10-year-olds, as rated by teachers, have been found to be predictive of later persistent antisocial behaviour in adulthood in a longitudinal sample in Sweden (Bergman & Andershed, 2009). The Pittsburgh longitudinal cohort found no differences between groups with or without ADHD and antisocial behaviour (Shaw, Hyde & Brennan, 2012), but this may have been confounded by a shorter follow up period (seven years) than the Swedish study. In support of the Swedish longitudinal study mentioned above, a recent meta-analysis found that youth with ADHD were more likely to recidivate than youth without ADHD ($d = .376, p = .039$; Wibbelink, Hoeve, Stams & Oort 2017).

Young people with ADHD may also be more likely to re-engage in antisocial behaviour after participating in treatment that does not consider the needs specific to their disorder (Gordon, Diehl & Anderson, 2012). One study compared young people who did or did not participate in a highly structured programme that addressed substance use and antisocial behaviour needs. This study found that the group of young people that underwent treatment were more likely to reengage in antisocial behaviour post release than those with ADHD that did not undergo treatment despite the programme adhering to most RNR principles (Gordon et al., 2012). The authors later discussed that this finding was due to the programme not being responsive, lacking aftercare, lacking a behavioural management system and an underutilisation of individual assessments. This finding supports literature in Chapter One around the limitations of RNR based programmes while also highlighting that

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youth justice systems need to be responsive to the needs of young people with neurodisabilities in order to influence recidivism rates.

Overall, there is considerable evidence to suggest that the number of young people with ADHD in the youth justice system is disproportionate to those in community samples. The presence of ADHD may contribute to persistent antisocial behaviour and later recidivism of young people, indicating that ADHD in childhood, along with other difficulties, may place a young person at risk of LCP membership. This is a concern as it may demonstrate that youth justice systems are not meeting the needs of young people with ADHD.

Autism Spectrum Disorder (ASD)

ASD is characterised by persistent deficits in social communication and interaction, and restricted and repetitive types of behaviours and interests that cause clinically significant impairments (DSM-5; APA, 2013). ASD ranges in severity, due to the level of support required, from very little to substantial. Prevalence in the general population is estimated to be one percent for children and adults (APA, 2013). There have been mixed findings on the prevalence for ASD within justice samples. One review suggests ASD prevalence of between 2-18% in forensic institutions (Rutten, Vermeiren & Van Nieuwenhuizen, 2017) while another suggests that ASD is not over represented within the criminal justice system (King & Murphy, 2014). A third review suggests that ASD may be prevalent but under detected within the youth justice system (Mouridsen, 2012). It is notable however that the aforementioned reviews often examine specific populations, such as patients in forensic hospitals, and can be limited by sample sizes. There is, however, other evidence to suggest that young people with ASD are often stopped by the police (Rava, Shattuck, Rast & Roux, 2017). For example, a national U.S. survey of young people with previously diagnosed ASD found that by the age of 21, 20% had been stopped and questioned by police, with 5% arrested (Rast et al., 2017). Contact with the police provides more opportunities for young people to be subject to official

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sanctions. As this survey focused on young people previously diagnosed with ASD, it may have underestimated the level of police contact. The next section will discuss other indications that, when combined with other factors, ASD may be associated with some specific types of antisocial behaviour.

ASD and antisocial behaviour.

There is some evidence that young people with ASD may be more likely to be involved in violent antisocial behaviour, but this appears to be mediated by other factors (Cheely et al., 2012; Heeramum et al., 2017). For example, Heeramun et al. (2017) examined the relationship between ASD and violent antisocial behaviour in a Swedish cohort, aged 15-27 years. They found that a higher proportion of those with ASD had been convicted of a violent crime by the age of 27. However, further analysis revealed that co-occurring ADHD and conduct disorder explained this difference following further analyses. It was also found that, compared to those with ADHD or conduct disorder alone, those with a comorbid ASD diagnosis had a reduced risk of conviction. In a comparison of offences by young people with ASD and a control group without ASD (identified through a screening programme in South Carolina at 8 years of age), it was found that 5% of youth with ASD had been charged with an offence but the type of offence varied widely (Cheely et al., 2012). Compared to the comparison group, those with ASD had lower rates of charges overall, although they had significantly higher rates of offending against people, such as assault. The authors speculate that this may be due to impairments in executive functioning that reduce self-control of aggression (Cheely et al., 2012). Young people with ASD were also less likely to have probation violations. This finding may reflect the tendency of people with ASD to follow rules. Some suggestions have also been made that young people with ASD may be at risk for sexual offending. This is due to misinterpreting social cues such as consent, and the possibly

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of obsession over sexual content which may result in the development of deviant paraphilia's (e.g., Gralton & Baird, 2017).

Despite findings that ASD may be related to some instances of violent antisocial behaviour, other authors have inquired as to why this might be (Im, 2016; Kawakami et al., 2012). Kawakami et al. (2012) examined risk factors for antisocial behaviour in a comparison of young people with high functioning ASD that did or did not engage in antisocial behaviour. They found that the age of first diagnosis, and exposure to physical abuse and neglect, significantly predicted the involvement in antisocial behaviour. In particular, they found the later the age of diagnoses, the higher the likelihood of offending. This indicates that ASD itself does not necessarily predispose young people to an increased risk of antisocial behaviour, but that the exposure to violence and trauma, especially when the needs of the disorder are not addressed, may be related to later violence. Im (2016) discusses the influence of trauma on individuals with ASD who commit instances of violence. Im suggests that difficulties in processing trauma for people with ASD could lead to violence in some contexts when frustrations arise, potentially due to inflexible problem solving and previous exposure to violence. This proposal is supported by some of the previously mentioned studies and emphasises that it is not due to the disorder itself but instead exposure to other risk factors.

Implications for ASD youth.

Young people with ASD can also be vulnerable to bullying and manipulation due to the nature of the disorder. For example, a meta-analysis found school-age young people with ASD were more likely to be bullied than their typically developing peers (Maiano, Normand, Salvas, Moullec & Aime, 2016). This may amplify problems already present if these behaviours are not identified and adequately treated.

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Overall, ASD alone is not related to antisocial behaviour. However, exposure to known risk factors, comorbid diagnoses and, a delayed diagnosis of ASD can put young people at risk for antisocial behaviour. Importantly, there are clear opportunities for early intervention and prevention of antisocial behaviour for young people with ASD if their needs are identified and appropriately addressed.

Foetal Alcohol Spectrum Disorders (FASD)

FASD covers a range of associated disorders which are the result of the harmful effects of alcohol use during pregnancy, and affects intellectual and emotional functioning. Diagnosis of full Fetal Alcohol Syndrome (FAS) requires the measurement of both physical symptoms (e.g., a smooth philtrum) and an assessment of cognitive functioning (e.g., Jones & Streissguth, 2010; Roozen et al., 2016).

Although FASD related disorders are recognised as being present in youth justice settings internationally (Hughes et al., 2012), there are different methodologies used to estimate prevalence. These methods include; structured interviews, reviews of medical records, photographic identification of known physiological problems, or a combination of these methods (Brown, Connor & Adler, 2012; Corrado & McCuish, 2015; Passmore et al., 2016). There is variability in estimated prevalence within youth justice populations.

Prevalence.

A systematic review of the prevalence of FASD found only four studies suitable for inclusion and reported rates between 10.9% and 22.3% within youth justice facilities (Hughes, Clasby, Christabesan & Williams, 2016). The authors of this review had strict inclusion criteria such as the research needing to report how FASD was measured and the age range of the sample.

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In contrast, others have found small prevalence rates within youth justice settings. For example, Corrado and McCuish (2015) found, using interviews and reviews of case notes, that 1% of young people in custody in Canada had received a definitive diagnosis or most likely fit diagnostic criteria for FASD. FASD was also associated with an earlier age of first incarceration, and more frequent antisocial behaviour. However, after controlling for mediating variables, the relationship between FASD and earlier and chronic antisocial behaviour became insignificant. Low prevalence rates in correctional samples have also been reported by Burd, Fast, Conroy and Williams (2010), though they suggest this may be due to underestimating the true prevalence of FASD, particularly because some subtypes do not have the physical symptoms discussed above, such as Alcohol Related Neurodevelopmental Disorder (ARND).

FASD and antisocial behaviour.

As part of a longitudinal sample in the United States study, Lynch, Coles, Corley and Falek (2003) compared youth with or without diagnosed FAS on self-reported delinquency at 15 years of age. They found no effect for prenatal alcohol exposure, when other known risk factors for delinquency, such as parental supervision and substance use, were accounted for. However, there may be a confound in the results given the difficulties in diagnosis of FAS in general, and within youth justice populations in particular, that may mask any association between FAS and antisocial behaviour (especially as there could have been undiagnosed FAS disorders within the comparison group). A Canadian study examining a cohort of young people, referred over a twelve-year period for a court ordered neurocognitive assessment, compared antisocial behaviour and profiles of those diagnosed with or without FASD (Harker, 2014). This study found few differences in offending between the two groups, but this would have been limited by the heterogeneity of the sample and the unspecified disorders that underlined the neuropsychological deficits in the group without FASD. A follow-up

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study of the same study group examined the relationship between conduct problems and FASD of young people (11-18 years of age) two years after first diagnosis (Todorow, 2016). This study found half of the sample had conduct problems, while a third of the sample had previous contact with the justice system for engaging in antisocial behaviour. Notably, many in this sample were also exposed to other risk factors, such as parents with histories of offending, maltreatment and family instability. This emphasises that, similar to other neurodisabilities, young people with FASD can be vulnerable to the exposure of other risks. The contribution of neurodisability to the exposure of these risks and the relationship to antisocial behaviour will be explored further in the next chapter through a theoretical framework.

Implications for FASD youth.

Young people with FASD have been found to be impaired in psycholegal understanding (McLachlan, Roesch, Viljoen & Douglas, 2014). In a study of Canadian youth aged 12-23 years, the majority of young people with diagnosed FASD involved with youth justice were impaired in at least one legal ability (e.g., understanding the right to remain silent) when compared to matched controls (McLachlan et al., 2014). Fast and Conroy (2009) also discuss the difficulties of people with FASD in navigating the legal system, such as their suggestibility and their potential to give false statements when they do not understand what is required. This can then lead to more extensive histories of antisocial behaviour as people with FASD may not understand the connection between events (such as the connection of a later arrest to an earlier instance of antisocial behaviour). Research paradigms are often limited by methodologies that likely underestimate the extent of FASD within the justice system and the true relationship of the disorder to antisocial behaviour. Despite the limited evidence of the relationship between FASD disorders and youth antisocial behaviour, based on Moffitt's

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(1993) research, early difficulties and problems associated FASD may place young people at greater risk for persistent antisocial behaviour when these issues are not addressed.

Overall, FASD in young people who commit antisocial behaviour is a problem and only in recent years has the awareness of this group in the youth justice sector grown. When these problems are not identified it leads to numerous difficulties for young people, which have been discussed above, and can result in the exposure to risk factors that contribute to antisocial behaviour.

Intellectual Disability (ID)

ID is characterised in the DSM-5 by the combination of a deficit in intellectual skills (generally measured by an Intelligence Quotient (IQ) score of below 70), and deficits in adaptive functioning in everyday life (APA, 2013). Adaptive functioning is defined as deficits that limit functioning in everyday life in one or more aspects, such as personal independence and communication. The severity of ID ranges from mild to profound based on the impairment in functioning of the individual. ID is commonly assessed in youth justice populations and has found to be prevalent (Hughes et al., 2012). Most studies use standardised cognitive assessment tools such as the Wechsler Intelligence Scale for Children (WISC) or the adult equivalent (Wechsler Intelligence Scale of Adults: WAIS; Haysom, Indig, Moore & Gaskin, 2014; Johnson, Kemp, Heard, Lennings & Hickie, 2015). In a New South Wales sample, up to 46% of young people in youth justice custody, with an average age of 17 years, had borderline or lower intellectual functioning with possible rates of ID five times higher than a community sample (Haysom et al., 2014).

Young people with borderline intellectual functioning, i.e., intellectual functioning close to the clinical diagnosis criteria of ID (such as IQ scores of just over 70, or, an IQ score of below 70 without the deficits in everyday functioning) have also been found to be

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disproportionately involved within youth justice settings (e.g., Peltopuro, Ahonen, Kaartinen, Seppala & Narhi, 2014). Borderline functioning can be associated with longer histories of antisocial behaviour and young people being incarcerated at younger ages (Indig et al., 2016).

ID and Risk.

A comparison of juveniles with and without diagnosed ID assessed on a dynamic risk assessment tool in Washington found that, on average, there were no differences in the level of risk between the two groups (Van der Put et al., 2014). However, there were some potential unique contributions of some factors in the risk assessment tool. For example, although they were non-significant, it was found that a factor relating to the ‘skills’ of the young person was negatively associated with recidivism for those with ID and positively related to recidivism in those without ID. This ‘skills’ factor measured items such as: poor consequential thinking, poor problem solving, poor goal setting, poor social skills, poor emotional regulation and poor situational perception. The authors suggest that those who have lower skill levels as assessed by this factor may have more severe ID which could result in more monitoring of their behaviour, or an impaired ability to commit more offences. They also suggested that due to the severity of ID it may have been acknowledged earlier and because of this diversion options may have been used. This study also suggests there may be other risk factors that are worthy of further research. It is relevant to point out that the ‘skills’ factor on this measure contains a wide range of items and as mentioned in the first chapter is not explanatory due to its composite nature. However, it is still useful here to consider as it demonstrates the need to unpack factors and not use them as treatment targets. A further comparison between young people with or without ID examined case files of high risk young people on a compulsory treatment order in The Netherlands (Kaal, Brand & van Nieuwenhuijzen, 2012). This study found there were few differences between the ID and non-ID groups, aside from behaviours specifically associated with the disorder, such as social

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skills and relationships. In combination, these studies suggest that aside from a few minor differences, the same risk assessments can be used with young people regardless of ID diagnoses.

Some studies suggest that children with ID may be more exposed to risk factors for conduct problems and later antisocial behaviour (Emerson, Einfield & Stancliffe, 2011; Emerson & Halpin, 2013). In an English longitudinal study, children with borderline or full ID were more likely to exhibit persistent conduct problems, but only when exposed to multiple risks (Emerson et al., 2011). Interestingly, Emerson and Haplin (2013) suggest that after controlling for risk factors, ID was associated with lower levels of antisocial behaviour in adolescence. This suggests that ID alone may not be a strong risk factor, but instead can put young people at risk of exposure to greater numbers of other risk factors for antisocial behaviour than young people without ID.

Overall, there is a high prevalence of ID in young people in youth justice settings. The associated problems with ID are likely to increase the risk factors present for these young people. However, once other risk factors are controlled for, in some cases (if identified) ID may be negatively related to antisocial behaviour if that means diversion is utilised and conduct problems are not dealt with by the justice system¹. It is also important to note the relationship between borderline symptoms of ID and antisocial behaviour. This group of young people may not qualify for support and may be difficult to identify and therefore assessed for the extent of their challenges. Like the disorders previously discussed, the above research implies that the needs for individuals with borderline or full ID are not currently being met by programmes or available treatments, and this requires further consideration.

¹ See the Intellectual Disability (Compulsory Care and Rehabilitation) Act 2003 for a New Zealand example of diversions available for instances of antisocial behaviours committed by people with significant ID.

THE PAM-NEXT Traumatic Brain Injuries (TBI)

TBI are brain injuries that disrupt the normal functioning of the brain, which vary from mild to severe, and can lead to aggressive behaviours in some instances. TBIs also lead to cognitive impairments, with the level of impairment dependant on the location and seriousness of the injury (Anderson et al., 2014). Prevalence of TBI in youth justice populations has been found to be significantly higher compared to the general population (Farrer, Frost & Hedges, 2013; Hughes et al., 2015; Hughes et al., 2012), with estimated prevalence rates ranging from 30%, reported in a meta-analysis (Farrer et al., 2013), up to 70% in a review of research (Hughes et al. 2012). The differences between these two figures may be due to the definitions of severity and how TBI was measured, such as self-reports, medical records or standardised tests (Hughes et al., 2015). TBI are different to some of the other neurodisabilities discussed as they are acquired and may occur at any time.

TBI and antisocial behaviour

Traumatic Brain Injuries may be associated with an earlier onset of antisocial behaviour by youth. For example, Timonen et al. (2002) present the results of a Finnish birth cohort study involving 12,058 people born in 1966, where young people who had a TBI before the age of 12 were significantly more likely to begin engaging in antisocial behaviour earlier than those who sustained a TBI later on in life. Some research has suggested that TBI in young people may hinder progress in treatment and that people with TBI may have difficulties changing their behaviour due to their cognitive impairments (Williams, Cordan, Mewse, Tonks & Burgess, 2010). In a New Zealand study, Lambie, Randall, Krynen and Ioane (2013) found young people with a previously disclosed head injury undergoing treatment for fire-lighting were 2.17 times more likely to reoffend post intervention than those without TBI. These studies suggest that young people with TBI may have difficulties engaging and therefore fully benefiting from treatment as they may not necessarily be

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responsive to their needs. If treatment is currently not responsive to the needs of young people with TBI, it is likely that they may also have problems adhering to navigating the youth justice system and meeting legal requirements.

Importantly for the explanation of antisocial behaviour of young people with TBI is when it was acquired. If a TBI occurred in early childhood, then it may increase the likelihood of young people belonging to the LCP group described by Moffitt (1993). Alternatively, if it is acquired in adolescence then it may increase the risk of persistent antisocial behaviour; this was discussed earlier and is not accounted for by Moffitt's (1993) model (Hughes, 2015).

Overall, TBI has been found to be prevalent within youth justice populations. It appears to be related to the onset of antisocial behaviour in some individuals and can contribute to problems in navigating the legal system. The impact of the TBI depends on the severity and location of the injury and, like other disorders, would need to be considered within the context of the young person.

Co-morbidity

Many young people in the youth justice system present with a comorbid disorder. For example, ADHD has been found to be a risk factor for TBI due to the greater risk taking behaviour of young people with ADHD symptoms (e.g., Hurtig, Ebeling, Jokelainen, Koivumaa-Honkanen & Taanila, 2016; Keenan, Hall & Marshall, 2008). Neurodisabilities within the youth justice population can also be comorbid with other types of mental health difficulties such as anxiety, depressive and substance use disorders (Young et al., 2015). FASD may also, in some cases, contribute to diminished IQ levels (e.g., Burd et al., 2010) and can also be comorbid with ADHD (Fast & Conroy, 2010). Lindsay et al. (2013) report 15% of young people referred to a service for forensic ID also had ADHD and this

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comorbidity was associated with greater levels of conduct problems than for young people with ID alone. Co-morbidity is worth considering as the young people with more than one disorder could be at greater risk for long term antisocial behaviour when these issues are not addressed. It is also important to consider the possibility of other mental health disorders in this population that may have resulted from previous trauma.

Overall, research suggests that young people with neurodisabilities are over-represented in youth justice systems internationally and may be at an increased risk for early onset and chronic antisocial behaviour. They may also have difficulties in navigating the youth justice system (e.g., completing treatment programmes or meeting appointments) which could be associated with further instances of antisocial behaviour if their needs (i.e., difficulties resulting from their neurodisabilities and other risks they might have been exposed to) are not adequately addressed.

Ethical issues

There are important ethical issues to consider for young people who experience neurodisability and interact with the justice system, particularly concerning whether young people are able to adequately interact with the police and later understand what is happening during the youth justice process (Lynch, 2016), e.g., if a young person's responses do not reflect what others expect of them in terms of displays of remorse, or defaulting to a 'yes' answer even if they did not understand what has been asked of them. Issues such as these may contribute to young people with neurodisability falsely admitting or being found guilty of an offence they did not commit, or not following through with a court order or probation requirement.

The legal and ethical obligations within the legal system for young people with neurodisabilities to be dealt with appropriately are discussed by Pierce-O'Brian (2014). These

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include the International Convention on the Rights of the Child (CRC; 1989)² which states that young people need to be dealt with in a manner that is proportionate to their circumstances and the context of the offence³. This demonstrates an obligation under international law to provide and take into account the needs of young people who come into contact with youth justice, inclusive of any disorders that they may have.

A further issue for young people with disorders involved in the youth justice system is that, when their needs are not met, their quality of life and self-determination may be impacted. These issues are discussed with reference to those with disabilities living in the community (Buntinx, 2013) in reference to the UN Convention on the Rights of Persons with Disabilities (CPRD; 2006) and quality of life indicators, but also apply to young people with neurodisabilities in youth justice systems. Buntinx (2013) states that CPRD articles correspond to quality of life indicators of personal development, self-determination, interpersonal relations, social inclusions, rights, emotional wellbeing, and material wellbeing. When young people with neurodisabilities are not identified until a young person has contact with the youth justice system, then their quality of life is likely to have been inhibited prior to their identification and justice involvement.

Particularly important for the current thesis, Article 14 (CPRD, 2006) provides that those in custody with disabilities are treated on an equal basis with others, including the provision of reasonable accommodation. Under this article, treatment and risk assessment must therefore be able to take into account and consider casual factors behind such young people's antisocial behaviours, especially if their disorder may have predisposed them to other risk factors.

² See also the United Nations Standard Minimum Rules for the Administration of Juvenile Justice (The Beijing Rules; 1985).

³ Under Article 40

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Ethical issues also arise when young people who offend become labelled as ‘youth offenders’⁴ (Willis, 2018). This is particularly important for young people, including those with neurodisabilities, when their needs have not been met and they become involved in youth justice procedures where there may be a risk of internalising the label. This is of concern due to the vulnerabilities of this group and the risk of them continuing to engage in antisocial behaviour into adulthood. This issue will be expanded upon further in the next chapter.

Summary: Neurodisabilities and offending

The high prevalence of young people with certain neurodisabilities in the youth justice system is a concern that needs further investigation. These disorders can place young people at risk for persistent antisocial behaviour when other risks are present. The prevalence within youth justice raises concerns that there may be gaps in meeting the needs of this group of young people who engage in antisocial behaviour. There are also a number of ethical issues and obligations that need to be addressed in order to meet the needs of this group effectively, to support self-determination of these young people while also reducing their risk of future antisocial behaviour. Therefore, these gaps need to be examined more closely and within a framework that unpacks the contribution of some of these disorders to the assessment of dynamic risk. This will be the case in the next chapter.

⁴ For the purposes of the current thesis, this term is not be used in favour of describing the behaviour of the individuals i.e. young people who engage in antisocial behaviour etc.

Chapter 3: Introducing the PAM-NEXT

The previous chapters identified several problems with dynamic risk assessment and its links to treatment of young people with neurodisabilities involved in the youth justice system. As mentioned, when these problems are not addressed, there is some evidence that they can be associated with an individual's long term antisocial behaviour when other risks are present, and thus it is imperative that the contribution of neurodisabilities to the development of dynamic risk is explored. Frameworks developed to address the issues identified with dynamic risk in chapter one will firstly be reviewed in this chapter before introducing an extended framework to explain the antisocial behaviour of young people with neurodisability. The current chapter will then examine two case studies of young people who have engaged in antisocial behaviour to demonstrate the utility of this extended framework. The process of their antisocial behaviour will be unpacked to tease apart contributions from their developmental history to subsequent exposures to contemporary dynamic risk factors, and the impact of these on their engagement with antisocial behaviour. Avenues for treatment using the framework will then be discussed.

Existing frameworks

Several frameworks have been previously proposed to address the identified problems with dynamic risk and its relationship to treatment (e.g., Heffernan & Ward, 2015; Ward & Beech, 2004; Ward & Fortune, 2016). These include the Agency Model of Risk (AMR; Heffernan & Ward, 2015), The Dynamic Risk Factor Research Framework (Ward & Fortune, 2016), and The Etiological Model of Risk (Ward & Beech, 2004)

The AMR (Heffernan & Ward, 2015) aims to unpack dynamic risk factors through the process of agency, goals, and strategies and, how these interact within a particular context at the time of an offence. Agency in this context refers to an individual's self-determination in creating plans and strategies to achieve their goals. This model takes an agency approach to

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understanding risk and was originally applied to adults who commit sex offences. However, the AMR is limited as the offence process is not as clearly specified as it is in other models, such as the Predictive Agency Model (PAM; Heffernan & Ward, 2017), which is further discussed below.

The Dynamic Risk Factor Framework (Ward & Fortune, 2016) provides a tool to break apart individual dynamic risk factors into their casual mechanisms through different levels of explanations, for example biological or social. This framework was not used here, as other frameworks are more suited to examining the role of neurodisability in antisocial behaviour, and its relationship to other dynamic risk factors. Despite this, the framework is useful to consider and emphasises that dynamic risk factors can be broken down by the different levels of explanation, but is too specific to be used to practically consider the influence of neurodisability on the antisocial behaviour of youth.

The Etiological Model of Risk developed by Ward and Beech (2004) was created to link dynamic risk factors to theories of sexual offending. Unlike the models previously discussed, it considers the role of developmental factors and their link to vulnerabilities that increase the risk of an individual to sexually offend. The model then takes into account contextual triggers and their impact on acute risk, to allow an understanding of the level of risk. The model, unlike some others, considers the role of developmental factors and this is useful to build upon. However, in the model these are poorly specified, and their mechanisms are not detailed. As this model does not consider the offence process, this model will not be used for the current purpose (i.e., to understand the role of neurodisability and its relationship to dynamic risk).

The frameworks discussed above contain useful insights for the explanation of dynamic risk factors, but there are limitations with their application to young people with

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neurodisability. This is because developmental history needs to be considered when explaining the antisocial behaviour of this vulnerable group, as symptoms of neurodisability can interact with other risk factors which in some circumstances may result in an escalation in the complexity for a young person, and result in antisocial behaviour.

The PAM

For the current exercise, Heffernan and Ward's (2017) Predictive Agency Model (PAM) will be used to consider how some of the disorders previously mentioned contribute to the explanation of dynamic risk factors. The PAM was chosen as it is a recently developed model of goal directed behaviour and considers how this applies to the explanation of offending and dynamic risk. This is important as the PAM is able to emphasise factors within the offence process that maintain the offending behaviour. This also allows for the reframing of antisocial behaviour for young people with neurodisabilities by unpacking the various risks they have been exposed to and the relationship of these risks to symptoms of particular neurodisabilities.

The PAM is grounded in five theoretical commitments, these specify and define what the theory aims to cover and achieve (Ohlsson, 1999). These commitments are briefly summarised below.

The first theoretical commitment is *subjectivity* which refers to the ability of people to have a unique first perspective and the capacity for intentional agency through actions. This ability allows people to think, plan and anticipate the behaviour of others based on their previous experiences as individuals (Ward, 2017). Secondly, the importance of *emotional systems* and their role in decision making and the exercise of agency, these are used by individuals to motivate and prioritise rewards through shifting attention to certain stimuli. This emotion is related to the *Primary Human Good* concept in the Good Lives Model

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(GLM) developed by Ward and colleagues (Ward & Maruna, 2007), which postulates that people have emotional desires that motivate them to achieve certain goals. Thirdly, *nested systems* is the idea that humans are comprised of a system that includes biological, social, psychological and cultural factors. These shape and influence our view of the world and emphasise the need for multi-level explanations for human behaviour. As previously discussed, this is of particular importance to the explanation of antisocial behaviour of young people and the systems that maintain that. The fourth commitment is that *subjective explanations* are irreducible in the explanation of offending, and are useful in treatment. This allows for individuals to explain for themselves what they were trying to achieve in committing an offence (or engaging in antisocial behaviour in the case of youth), and, allows for practitioners to begin to unpack what has maintained these ideas. The last commitment is that the *mind is a predictive engine*. This relates to the ability for people to be prospective in anticipation of future events and evaluate consequences of proposed behaviour, meaning the ability of individuals to think about the potential impacts of proposed actions and to mentally prepare for these consequences (Heffernan & Ward, 2017).

These commitments form the basis of the model reproduced below, where dynamic risk factors are thought of as variations within core capacities required for predictive agency. The PAM views offending as a goal directed behaviour and, because of this, the same mechanisms of agency would apply. This means that the same principles apply to antisocial as any other behaviour where individuals act in a certain way to achieve certain goals.

The PAM therefore was developed from previous literature on psychological structures and theories of reasoned actions for behaviour in general and applied in the context of offending behaviours (Heffernan & Ward, 2017). The PAM is reproduced in Figure 1 and summarised next.

Figure 1. The Predictive Agency Model developed by Heffernan and Ward (2017)

In this model, the *First-person perspective* relates to the experiences, theories about the world, and current emotions present before the context of an event. The *Current context* refers to triggers in a particular situation which activate relevant world views and affect the emotional lens within the *First-person perspective* through which a person views an event. The *Construction of local models* refers to the activation of scripts for the current context that have been developed over time from past experiences. These scripts are specific to the situation and cues based on the individual's perception or view of the current situation through the *Current context*. *Planning* refers to the implicit and explicit decisions an individual makes based upon their expectations of outcomes from a proposed behaviour. This planning takes into account social norms of the behaviour, the potential rewards from enacting the behaviour, and whether personal skills are adequate to complete the proposed behaviour. *Action* refers to the plan being put in place and testing of the expectations from

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planning. *Feedback and reflection* is the appraisal of whether the planned behaviour was successful or not, the experiencing of rewards from the behaviour, or the modification of future strategies as a result of an unsuccessful plan. This *Feedback and reflection* phase then feeds back into the *First-person perspective* and contributes to future scripts and options for behaviour in future events. As a result, the PAM depicts a feedback loop for goal directed behaviour that is reinforced over time. Notably this model is not specific to offending and can be applied to many behaviours. Heffernan and Ward (2017) created the PAM in their original paper to unpack dynamic risk factors, and explored the role they played in the process of a sexual offence.

PAM Evaluation.

The PAM is useful for explaining dynamic risk factors but needs to be adapted in order to tease apart contributions of particular disorders experienced by some young people. Through its commitment to nested systems of humans, the PAM acknowledges the neurological and biological levels of explanation, but does not explicitly outline these as they underlie the model as a whole. As part of this, developmental history underlies the first-person perspective, with this aspect explaining how individuals view themselves, others and their environment, as well as influencing current emotions and scripts in certain contexts. These are said to have developed over time in response to feedback, but also depend upon neurological and biological functioning. This is useful in the explanation of changes in behaviour across time (including desistance), based on feedback and reflection from the behaviour. For example, if an individual was arrested, this may inhibit future offending as they could become aware of the consequences and/or become involved with treatment. In addition, the PAM also explains reoffending with dynamic risk factors becoming more engrained with time and instances of ‘successful’ (i.e., experienced as rewarding) offending.

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In its current form, the PAM's relative inattention to developmental history limits its depth of explanation of antisocial behaviour for young people with neurodisabilities. This would impact the level of understanding of individual instances of antisocial behaviour (i.e. case formulation), which in turn could impact treatment. In order to explain the antisocial behaviour of this group, the PAM requires a more explicit link to developmental history and exposure to other risks. This link is needed because of the complex interactions between symptoms and environment which can expose this group to numerous other risk factors under particular circumstances. Including this explicit link will make the PAM consistent with literature in the development of antisocial behaviour in adolescents and account for biopsychosocial interactions (e.g., Dodge & Pettit, 2003; Raine, 2002). This follows on from Moffitt's (1993) typologies and other discussions (e.g., Hughes, 2015; Schmidt & Petermann, 2009), where difficulties resulting from neurodisability can impact ongoing development (e.g., by eliciting maladaptive parenting from parents who do not have adequate skills), which in turn can contribute to negative outcomes in the longer term.

Introducing the PAM-NEXT

In order to reflect the influence of neurodisability on young people's antisocial behaviour, the PAM model proposed by Heffernan and Ward (2017) has been extended as the Predictive Agency Model-Neurodisability Extension (PAM-NEXT). The PAM-NEXT highlights the contribution of developmental factors and initial exposure to risk factors prior to the onset of antisocial behaviour. In doing this, it allows for an explicit explanation of the contributions of the behavioural symptoms resulting from neurodisability and other social factors such as parenting. This will allow the PAM-NEXT to unpack the influence of particular disorders on dynamic risk factors and allow for its use as a theoretical model to conceptualise the process of antisocial behaviour. As such, it is anticipated that this extension will be useful for practitioners working in the area of youth justice in explaining the process

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of antisocial behaviour with the explicit integration of developmental factors. The practical utility of this model will be discussed further when examining two composite case studies of

young people. The PAM-NEXT is presented in Figure 2:

Figure 2. The PAM-NEXT

In the PAM-NEXT, *Developmental History* emphasises the relationship between the *Early difficulties from ND (neurodisability)*, and poor parental practices (shown under *Maladaptive parenting*). *Early difficulties from ND* are presenting phenomena that are associated with difficulties caused by neurodisability, in some cases these can be present at

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birth (such as: cognitive rigidity and emotional dysregulation in the case of ASD or difficult temperament) or acquired later (in the case of TBI). This relationship between these early difficulties and poor parenting can all impact upon behavioural problems that may already be present (resulting from the neurodisability, such as babies who are difficult to soothe).

Literature has found internalising (i.e., behaviour that manifests as maladaptive moods) and externalising (i.e., maladaptive behaviour manifesting through physical phenomena, such as aggression) in children increases the level of parental stress (Neece & Chan, 2017). Previous research has often found parental stress can be associated with parenting children with disability, compared with children without these difficulties. Parental stress can then interact with the behaviour of children with these difficulties, with a longitudinal study suggesting child behaviour problems may be the consequence of parental stress or be increased by levels of parental stress (Neece, Green & Baker, 2012). Parental stress resulting from behaviours associated with disability of young people may then affect parenting styles. For example, one study found more authoritarian or permissive styles when there were more deficits in the executive functioning of their children (Hutchison, Feder, Abar & Winsler, 2016). This is important, as permissive and authoritarian parenting styles have been associated with negative outcomes such as greater levels of internalising or, in cases of inconsistent discipline externalising and antisocial behaviour in adolescence in research of general populations (e.g., Luyckx et al., 2011). Notably, this may have a greater effect on young people when the style of parenting is inappropriate for meeting the complex needs of their neurodisability. This is consistent with Moffitt's (1993) observation, discussed in Chapter Two, of the poor match between children with early difficulties and caregivers often lacking the skills to adequately meet these needs. In addition, several neurodisabilities of interest are have contributing genetic causes (i.e., ADHD, ASD, ID; APA, 2014) which can contribute to temperament and the skills of biological caregivers to parent for the needs of young people who may have the

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same disorder. It can be elucidated from this discussion that maladaptive parenting can mean needs of young people are not addressed and because of this, the behaviours of these individuals may escalate and become more difficult to change over time.

Maladaptive parenting may then lead to *conduct problems* in childhood and adolescence, which in turn, may lead to further negative responses from caregivers in a reciprocal relationship displayed above. The relationship between maladaptive parenting styles and conduct problems have been well documented (Moffitt, 1993; Murray & Farrington, 2010) and maladaptive parenting is a risk factor in the development of Conduct Disorder (APA, 2013). Some cases of neurodisability are also strongly related to conduct problems in children themselves. For instance, ADHD is highly comorbid with Conduct Disorder (shown by the relationship between *Early difficulties from ND* and *Conduct problems*).

Early difficulties from neurodisability may also make a child (or adolescent) more vulnerable to abuse and ensuing trauma (shown by its link to *Trauma/Abuse*). For example, abuse may occur when parents become frustrated when they believe a child is being non-compliant, when in fact the child does not understand what was being asked of them. There is some evidence to suggest that disability in childhood may increase the risk of child maltreatment, though this relationship is complex (Heinonen & Ellonen, 2013; Leeb, Bitsko, Merrick & Armour, 2012). Particular symptoms of neurodisability, such as externalising behaviours, can also put young people at greater risk of harsh parenting practices or abuse in some circumstances (e.g., Norlin, Axberg & Broberg, 2014; Vanderminden, 2013). In other cases, symptoms from a neurodisability could make young people more easily led. For example, in the case of ASD, a young person may have a tendency towards rule following when an adult asks them not to reveal what happened to them, which may put them at increased risk of chronic abuse. Alternatively, this may mean they are more vulnerable to the

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influence of antisocial peers compared to other young people of a similar age. When there is trauma, this may result in comorbid difficulties (such as resulting complex mental health problems), which in turn could also compound upon already present behavioural issues (represented by the reciprocal relationship between *Trauma/Abuse* and *Early difficulties from ND*). Importantly, there is evidence to suggest that rates of abuse and trauma are disproportionally high for young people who engage in antisocial behaviour, and some evidence suggests that it can be a precursor that increases the likelihood of future antisocial behaviour (e.g., Kerig & Becker, 2015; Wilson, Stover & Bwerkwitz, 2009). This is accounted for by the relationship between *Trauma/Abuse* and conduct problems within *Developmental History* of the PAM-NEXT.

All of these discussed factors interact as shown in the PAM-NEXT. Notably, the dashed arrows (within *Developmental History*) are designed to show the cycle that increases the likelihood of *Exposure to other risk factors* that can occur in some circumstances. For example, if a young person with neurodisability was exposed to maladaptive parenting, this may not inherently lead to trauma or abuse. Some parenting styles, such as a permissive style, may not be appropriate for their needs and may escalate difficulties but would not necessarily result in trauma or abuse. These relationships within *Developmental history* are also able to show that early difficulties caused by neurodisability do not always lead to this escalation, particularly when caregivers have adaptive parenting practices which can be protective and reduce the likelihood of developing conduct problems. Such could be the case when early conduct problems are identified and treated in early childhood to encourage a prosocial trajectory that meets the needs of young people with neurodisability. This is likely to be the case with the childhood-limited group (see Lopez-Romero et al., 2015) that initially have conduct problems in childhood but recover by adolescence.

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The complex interplay displayed in *Developmental History* can lead to young people being exposed to other risks, which have been included in the PAM-NEXT under *Exposure to other risks*. These can also be present during development and contribute to the negative cascade for young people, increasing the likelihood of them engaging in antisocial behaviour. Within the PAM-NEXT, *Exposure to other risks* accounts for known risk factors for antisocial behaviour and encompasses a range of factors such as school dropout, substance use, and the movement towards pro-criminal peers (as discussed in Chapter One). These factors are dynamic risk factors and can dually be the outcomes of the maladaptive cycle described within *Developmental History*, while also further contributing to an escalation of the complexity and likelihood of antisocial behaviour. This can be the case when young people are dually exposed to known dynamic risk factors, while also being exposed to maladaptive factors that can further increase their risk longer term. For example, a young person could be using alcohol or drugs with their pro-criminal peers during their leisure time, only to return home to further instances of inconsistent and harsh discipline which could continue to normalise violence. The young person may also continue to be exposed to trauma, resulting in further conduct problems, more time with pro-criminal peers and greater likelihood of engaging in antisocial behaviour long term. This example shows a scenario where young people can continue to be exposed to maladaptive factors that fit under *Developmental History* within the PAM-NEXT while also being exposed to known dynamic risk factors. At the same time, the PAM-NEXT also accounts for young people who were initially exposed to the maladaptive cycle described within *Developmental History* of the PAM-NEXT, but are only exposed to further dynamic risk factors (under *Exposure to other risks*) after aspects of this cycle are no longer current, yet continue to influence their behaviour. For example, a young person might run away from home to get away from a maladaptive parenting environment and to live with other pro-criminal peers. In this case, the

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cycle described in *Developmental History* would continue to influence their behaviour, but different needs would be targeted with this group in treatment. It is a strength of the PAM-NEXT to be flexible in accommodating these different circumstances.

Importantly, the reciprocal relationship between the *Developmental History* and the *Exposure to other risks* aspects of the PAM-NEXT addresses an important gap, identified in Chapter One, in the methodological limitations of dynamic risk assessment. Typical dynamic risk assessment approaches can be useful in the identification of the broad-based risk factors, but is unable to explain their causality. The PAM-NEXT allows for a framework to not only outline how they were developed, but also how they are operationalised within the process of antisocial behaviour itself for young people with neurodisabilities.

The PAM-NEXT then operationalises how young people's developmental history and the risks they have been exposed to inform the process of antisocial behaviour. This is useful as it explicitly explains how the role of neurodisability phenomena effect the process of antisocial behaviour at each stage of the PAM framework. Case studies⁵ will now be applied to show how the PAM-NEXT can explain different types of antisocial behaviour engaged in by young people with neurodisabilities. These case studies are presented in paragraph form below, and the PAM-NEXT will be used to unpack their developmental history and how developmental factors may be linked to their antisocial behaviours.

Case study 1: David.

David is a 15-year-old male currently in a youth justice residential facility. Following his most recent youth court appearance, for a serious assault, he was assessed and diagnosed with ADHD and Conduct Disorder. His previous instances of antisocial behaviour cover a

⁵ These are fictional composites derived from realistic cases of young people who engage in antisocial behaviour

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range of violence and robbery incidents, accumulated since he was 13 years old. His case notes reveal that he has had a complex history with a range of out of home care placements due to physical abuse, and exposure to domestic violence which were associated with a number of school transfers and subsequent exclusions. His mother described David as a naughty child who was slow to meet his developmental milestones, with an alcoholic father. His index instance of antisocial behaviour was an assault and robbery related to a physical attack on a shopkeeper (not involving weapons) after his card was declined while he was trying to purchase cigarettes in the presence of his peers.

PAM-NEXT – David.

The case of David is displayed in Figure 3. His developmental history informs his offence process detailed in the PAM. His *Early difficulties from ND*, as a result of his ADHD, meant that he was restless and difficult to soothe as a child. This then elicited *Maladaptive parenting* practices in conjunction with a chaotic home environment, and exposure to violence between his parents. This normalisation of violence within the parental household and his parents' inability to provide adequate parenting to meet David's needs then led to the physical *Abuse* of David and subsequently increased his levels of impulsivity. This *Abuse* also meant that David developed an attitude that he must not look weak as this puts him at risk of harm. As David grew older, he began to develop *Conduct problems* and behave in an increasingly aggressive manner, partially in response to these poor parenting practices and his needs not being met. This cycle also contributed to emotional dysregulation as his experiences of *Abuse* meant that he interpreted neutral situations as aggressive and his impulsivity lead to violent outbursts. These relationships are displayed in the model and emphasise that early difficulties, associated with neurodisability, can mean young people are vulnerable to a range of problems in their early development.

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David's *Developmental history* meant he was at greater risk of other issues (displayed within *Exposure to other risks*) including a history of care placements after authorities recognised that he was being harmed at home. School dropout was the result of his attention difficulties, the inability to sit without being a distraction to others, and getting bored due to his inability to understand concepts that built upon past lessons. This disruption in schooling, poor supervision by his birth parents and subsequent care placements brought him close to antisocial peers and resulted in poor use of leisure time. These risk factors interacted, and he was exposed to them through the maladaptive cascade resulting from his developmental history.

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Figure 3. The PAM-NEXT applied to the case of David

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In terms of his antisocial behaviour, within the *First-person perspective*, his ADHD and the interactions within his *Developmental history* (as described earlier, shown in the PAM-NEXT) resulted in general models of the world as unpredictable (learnt through his history of abuse and impulsive nature), and that he cannot rely on others (as his previous experiences lead to distrust in authority as he had had to rely on himself). His affective lens is negative due to his views of the world (in conjunction with his withdrawal from tobacco) and, because of this, David tends to interpret things in a negative manner or with hostility. In his *Current context* his card was declined while attempting to purchase cigarettes in the presence of his pro-criminal peers. This made him feel angry, rejected and embarrassed in front of his peers. *Local models* can then be constructed, which inform our understanding of how he behaved in this situation, such as that he felt that the product was owed to him, that he looked weak in front of his peers and his belief (learned from childhood through exposure to abuse and domestic violence) that violence is a legitimate means to resolve conflict. These attitudes have been informed by his developmental history and have become reinforced by the previous instances of antisocial behaviour that David has been involved in. David's *Planning* was limited due to his impulsivity and prior conduct problems, and his expectations would have been to gain the product, 'save face', strengthen cohesion with his peers and to demonstrate that he can be part of the group and rely on himself (rewards, norms, self-efficacy). This leads into *Action* of the theft and assault itself in which David attacked the shopkeeper and took the product. Within his *Feedback and reflection* the perceived successful outcome increases the likelihood of similar behaviour in the future due to the positive reinforcement of achieving his goal and resulting positive emotions. This also strengthens his general models which are supportive of antisocial behaviour.

In David's case, the PAM-NEXT is useful to examine the contribution of distal developmental risk factors and how they operationalise through his contemporary antisocial

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behaviour. This is important as it is able to take into account the negative cascade resulting from his developmental history (his ADHD not being appropriately met, maladaptive parenting, conduct problems and abuse) and his subsequent exposure to a number of other risk factors (e.g., abuse, pro-criminal peers, limited schooling etc.). The PAM-NEXT is useful in identifying target behaviours for treatment, such as emotional difficulties due to previous trauma and ongoing emotional dysregulation. The PAM-NEXT emphasises the need for individually based treatment to target specific mechanisms for young people that occurred due to their developmental history and that are maintaining their antisocial behaviour. Strategies could also be put in place to target David's impulsivity and inattention by teaching him the skills to manage symptoms associated with his ADHD. The Good Lives Model (GLM; Ward & Maruna, 2007) is also useful here as this would assess his strengths and what he wants to achieve, aside from his antisocial behaviour, and put him on a path towards achieving personally meaningful goals.

Case study 2: Tom

Tom is a 16-year-old male who was assessed following a Family Group Conference and found to have borderline intellectual disability. Tom presented as easily led, nodding in agreement during his appearance at the conference for a series of burglaries, committed as part of a wider group. A review of his developmental history found that his birth parents died in a car crash when he was six years old and his primary caregiver became his Aunt, who often neglected his basic needs. As he grew older he became transient (with no fixed residence) and was disengaged from his schooling essentially ceasing attending since he was 13 years old.

PAM-NEXT – Tom.

The case of Tom is presented in Figure 4. His *Developmental History* also influences his offence process which is unpacked using the PAM-NEXT. His *Early Difficulties from*

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ND, as a result of his borderline intellectual disability, meant he was slow to reach developmental milestones such as speaking, self-care abilities, delayed development of understanding the needs and intentions of others (due to his borderline ID), and emotional regulation skills. This then elicited *Maladaptive parenting* practices with his primary carer failing to adequately meet his needs and provide suitable supervision, and developing unhelpful beliefs about why Tom was misbehaving. These beliefs meant that Tom was perceived as a ‘bad child’ which resulted in his caregivers absolving their responsibility of him. This then contributed to *Conduct problems*, in part due to his limited ability to understand the needs of others, but also due to his limited emotional regulation skills which meant he could be defiant and aggressive. At the same time, the parenting style that he was exposed to meant his difficulties from his borderline ID were not met appropriately, increasing already present issues. His previous exposure to *Trauma* (the death of his parents) and history of neglect also contributed to some of his behavioural problems and internalising symptoms (i.e., untreated anxiety and depression developed from his history). This trauma, paired with Tom’s poor emotional skills, exacerbated already present deficits in emotional regulation.

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Figure 4. The PAM-NEXT applied to the case of Tom

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As in the case of David, Tom's *Developmental History* meant that he was exposed to other risk factors (shown in PAM-NEXT as *Exposure to other risk factors*) such as: alcohol use to cope with trauma, school dropout due to difficulties engaging with content and his school not meeting his complex needs. These risks limited his contact with prosocial peers and opportunities for his needs being addressed within the school system. His history of neglect meant that his caregivers did not monitor him adequately resulting in his transience. Tom also gravitated towards pro-criminal peers for friendship because he had limited opportunities for prosocial leisure activities.

In terms of his antisocial behaviour within the *First-person perspective*, Tom's borderline ID and history of neglect resulted in a general model that the world is unfair (learnt through his history of neglect, his background situation of transience and financial difficulties). A second general model that he can be useful (through his transience and skills learnt that may be useful when seeking friendship) also occurs. His affective lens is negative due to basic needs being unmet (such as his transience, limited income and few peers), and he views the world as unfair. In his *Current context*, Tom was with his pro-criminal peers, as they were planning a series of burglaries. This scenario allowed him seek intimacy through friendship while also trying to resolve his financial and living situation. Internally, Tom feels lonely, frustrated and on edge as he wants to improve both his financial and social situation through his participation in the burglaries and believes that only through participating he could gain friendship and acceptance. *Local models* are then constructed which, in part, were influenced through his limited understanding of the needs and intentions of others (due to his borderline ID), and his developmental history. These include his belief that the world owes him, the homeowners have enough and the theft will not affect them, and that his participation is the only way to relate to others. This attitude about the owners was partially developed through influence from his peers and egocentricity resulting from his disorder. As

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part of Tom's *Planning*, he views antisocial behaviour as normal to achieve his goals, that he can be useful, and if successful, he could gain acceptance and money. His planning is egocentric as he has difficulties in understanding the motivations and needs of his peers, the legal consequences that may arise for himself and, the harm caused to the owners. This leads to the *Action* through the burglary itself and the perceived successful outcome strengthens his beliefs about offending, the nature of friendship and worldviews (that the world is unfair and that he can be useful) as part of *Feedback and reflection*. This is because he fails to recognise that the group may only be celebrating the completed theft and not the value of his friendship.

In Tom's case, the PAM-NEXT helps unpack the contributions of his borderline intellectual disability to his developmental history and exposure to risks. It also helps us better understand the process of his antisocial behaviour. The GLM is also useful in a case like Tom's as one of his primary human goods is to achieve intimacy through friendship, and he currently has no adaptive strategy for making prosocial friends. Tom also had disruptions in education and, because of this, a specialised course that suits his needs could be useful to put him on a path towards a pro-social lifestyle, thus, allowing him to achieve his goals through legitimate means. The process of engaging someone like Tom will be expanded upon in detail in the following section.

Treatment and the PAM-NEXT

Treatment for young people with neurodisability who engage in antisocial behaviour needs to be individualised and the PAM-NEXT provides a useful framework to assist in targeting individual rehabilitation. This is because behaviours and attitudes that would need to be addressed in treatment affect every stage of the PAM-NEXT process which all contribute to the process of antisocial behaviour. This type of treatment would operate within the system of the young person using effect strategies (discussed in Chapter One) and begin to help young people manage symptoms of neurodisability, teaching new skills, and helping

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them achieve prosocial goals. This approach recognises that this group of young people come from difficult backgrounds and present with complex needs which may have been underdiagnosed or missed before they come to the attention of youth justice authorities. As a result, it is important to use strengths-based approaches in being mindful of some of the ethical concerns discussed in Chapter Two; because of this, the GLM (Fortune, 2017; Ward & Maruna, 2007) would be a useful rehabilitation framework that would give young people options to achieve their goals pro-socially after using the PAM-NEXT to identify where individual needs lie. For example, referring back to the case of Tom, the goal in treatment would be to help him achieve friendship through more prosocial means, such as through community groups or volunteering. Rehabilitation with Tom would also aim to challenge some of his attitudes, gained through his history of neglect, to build his confidence with authority figures and address his attachment difficulties. Efforts could also be made to involve Tom in educational courses and assist him into supportive accommodation, with the goal of working towards independent living. Addressing these difficulties in treatment would then start to adjust his models of the world, how he responds in certain contexts, and whether he remains in contact with pro-criminal peers. This may occur if he develops prosocial peers through community groups. Treatment would also address his local models in specific high-risk situations (i.e., through role play) or reduce the likelihood that they would be activated due to reducing contact with his pro-criminal peers. In terms of his planning, as he would be starting to make progress to meet goals pro-socially, Tom may realise that engaging in antisocial behaviour would jeopardise the achievement of these goals and also begin to understand the consequences of his behaviour on others (i.e., norms changed). A decision not to engage in antisocial behaviour as his action (within the PAM-NEXT) would reinforce prosocial behaviour during the feedback stage and over time he would become less likely to engage in antisocial behaviour. This is because, over time, Tom would avoid situations where

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antisocial behaviour would be reinforcing and each decision not to engage makes him less likely to engage in antisocial behaviour in the future.

This example of treatment with Tom informed by the PAM-NEXT demonstrates its utility to identify what to target, and how it helps in understanding the development of dynamic risk factors through Tom's developmental history. It is also useful to understand the impact of treatment on each stage of the model (i.e., causal models, emotion, planning). It is anticipated that this would be useful for practitioners as it not only allows for the unpacking of antisocial behaviour, but also the process of desistance, using a strengths-based approach that emphasises approach goals rather than risk reduction.

What the PAM-NEXT means for dynamic risk

Through these cases it becomes clear that the PAM-NEXT is useful for practitioners in understanding the dynamic risks present for young people with neurodisabilities. This is because links can be drawn between developmental histories and the exposure to negative cascades, to help better understand how young people have developed these dynamic risk factors. For example, the pro-criminal personality pattern in the case of David is due to the nature of his ADHD which is related to his impulsivity, while at the same time his previous exposure to violence likely normalised such behaviour. This would then have contributed to his assault on the shopkeeper described earlier. In the case of Tom, his history of neglect and limited understanding of the needs and intentions of others could contribute to a limited awareness of the harm that he could be causing others through his involvement in the burglaries. The pro-criminal attitudes, in both cases, would have been developed through previous exposure to offending when they were young and the abuse they had each experienced. These attitudes would then have been reinforced through their pro-criminal peers and successful instances of antisocial behaviour, without these attitudes being challenged by authorities or prosocial peers. Dynamic risk factors, such as the example of

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pro-criminal attitudes also then underlie every stage of the process of antisocial behaviour detailed within the PAM-NEXT. These interact with, and inform, decisions in the lead up to an instance of antisocial behaviour. Other dynamic risk factors in the PAM-NEXT can act as outcomes or interact with the negative trajectory those young people were on due to their developmental histories. This includes factors mentioned in each application of the PAM-NEXT to the two cases, such as school dropout as the result of previous disengagement, as school did not meet their specific learning needs. In this case, it is important to address what underlies their development in order to adequately target risk factors for young people with neurodisabilities. This is a key contribution of the PAM-NEXT in extending the PAM; it provides an explicit framework that is able to account for the development of dynamic risk factors and accounts for how they are operationalised during the process of antisocial behaviour. This is important in order to target causal mechanisms for this vulnerable group through individualised treatment that meets their needs, often further complicated due to their specific disorders and risks they are exposed to. It is anticipated that this contribution of the PAM-NEXT would be used following a dynamic risk assessment measure and be used to understand their development and how dynamic risk factors are operationalised in the process of antisocial behaviour, in order to inform specific treatment targets. This utility of the PAM-NEXT addresses some of the identified issues in the use of dynamic risk assessments in their current form and links what underlies dynamic risk factors more explicitly to treatment that were discussed in Chapter One.

Importantly, the PAM-NEXT can also be useful in explaining reductions in antisocial behaviour. Post treatment, for example, different local models and a different first-person perspective may be employed where the costs of antisocial behaviour now outweigh the original benefits as now they use strategies to achieve their goals pro-socially. This process reoccurs over time and likelihood of engaging in antisocial reduces as prosocial local models

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and the first-person perspective become more entrenched. The PAM-NEXT also has utility in explaining why some young people with neurodisability engage in antisocial behaviour when others do not, as it highlights the importance of different levels of risk factors.

Conclusion of this chapter

The PAM-NEXT has been proposed to extend the PAM (Heffernan & Ward, 2017) to consider the role of the developmental history of young people with neurodisabilities and how, in some circumstances, difficulties from neurodisabilities can contribute to the development of, or exasperation of, dynamic risk factors. This process then affects every stage of the process of antisocial behaviour as detailed within the PAM-NEXT.

The PAM-NEXT was then applied to two cases of young people with neurodisabilities to illustrate how difficulties from their respective disorders can put young people at risk of a negative cascade during development and exposure to dynamic risk factors. These case studies then elucidate how this developmental history affects every stage of the process of antisocial behaviour and the cycle of future antisocial behaviour after each completed instance. The model was then applied to one of these cases as an example of how treatment would target needs and impact upon the PAM process. Although these only covered two disorders discussed in earlier chapters, this adaptation of the PAM could be applied to any case of neurodisability with young people as the same processes would apply. The PAM-NEXT has utility in examining the development of dynamic risk factors and how they are operationalised in the process of antisocial behaviour in conjunction with developmental history factors. This is useful for practitioners, to help them understand why the young people might have engaged in antisocial behaviour and help them put strategies in place to reduce the likelihood of this vulnerable group engaging in antisocial behaviour in the future. The PAM-NEXT is also useful as it allows for the consideration of why a young

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person was involved in an instance of antisocial behaviour, what they were trying to achieve at each stage, and where attitudes supportive of antisocial behaviour came from in their developmental history among other dynamic risk factors. The next chapter will consider an evaluation of the PAM-NEXT and provide further avenues for research in this area.

Chapter 4: Evaluation and Conclusions

The previous chapter introduced the extension of the Predictive Agency Model (PAM; Heffernan & Ward, 2017), the Predictive Agency Model-Neurodisability Extension (PAM-NEXT), to unpack the contribution of dynamic risk factors in the process of antisocial behaviour for young people with neurodisability. This was developed to address some of the issues identified in early chapters around the problems with the conceptualisation of dynamic risk and how this impacts treatment, and the complex issues presented by young people with neurodisabilities who engage in antisocial behaviour. The current chapter seeks to evaluate the PAM-NEXT as a framework. It will also provide a general discussion, considering what the PAM-NEXT adds to the theoretical literature. Finally, the chapter will offer future directions for the PAM-NEXT and draw some conclusions.

PAM-NEXT Evaluation

This PAM-NEXT will be evaluated using theory appraisal criteria developed by Ward, Polaschek and Beech (2006). These criteria were developed as they assist in making judgements about the value of theory, particularly when it comes to competing theories which try to explain the same phenomena. The appraisal criteria are summarised and used to examine the PAM-NEXT below.

The first set of criteria, *Predictive accuracy, empirical adequacy and scope* refer to a theory's ability to explain the available findings and phenomena (Ward et al., 2006). The PAM-NEXT takes into account the criticisms of dynamic risk and offers a new way of interpreting these, while also taking into account developmental factors relating to young people with neurodisability who engage in antisocial behaviour. These factors, within the PAM-NEXT, are consistent with available findings of the development of conduct problems in adolescence, while also linking these findings to young people with neurodisability who

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engage in antisocial behaviour (e.g., Moffitt, 1993). Notably, the PAM-NEXT is also able to consider the role of acquired disorders such as TBI and antisocial behaviour by young people with this disorder. This is a unique contribution as other explanations tend to focus only on difficulties that occur during childhood and are unable to consider the role of acquired problems such as TBI (e.g., Hughes, 2015). The PAM-NEXT does this as it does not define what is required for the different parts of the model and only offers suggestions that may be of use to practitioners. It is of note, however, that some of the relationships between phenomena of interest discussed in this literature have not been found to be causal due to methodological limitations. Also, the majority of the research on the development of conduct problems, and antisocial behaviour in general, is focused on male populations. As a result of this, the PAM-NEXT did not focus on research that examined the antisocial behaviour of female youth specifically. However, it is anticipated that the PAM-NEXT would still be useful in practice with females with neurodisabilities who engage in antisocial behaviour as it is likely that the same processes detailed would apply. Despite these limitations, the PAM-NEXT still accounts for available research and allows for a framework to interpret antisocial behaviour and vulnerabilities of young people with neurodisability. The PAM-NEXT expands the scope of the PAM through explicitly examining how developmental factors relate to risk and operationalise and inform the offence process. Therefore, it is considered that the PAM-NEXT has adequate *predictive accuracy, empirical adequacy and scope* to meet these criteria despite its identified limitations.

Internal coherence refers to whether the theory is consistent or contains gaps. It is also concerned with whether the theory is testable and, by extension, falsifiable. As the PAM-NEXT was extended in line with existing theory on the development of conduct problems, and fits with literature of young people with neurodisability, this aspect should be met. The PAM-NEXT also addresses the identified gap in the original PAM by extending how

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developmental factors and neurodisability inform risk and the process of antisocial behaviour.

However, as the PAM-NEXT is a framework of development and the offence process of young people with neurodisability, it is not falsifiable due to its nature as a framework; this is a limitation.

Thirdly, *External consistency* refers to whether the theory is consistent with previously accepted theory in the field. The PAM-NEXT is consistent with previously developed theory that addresses the limitations of dynamic risk assessment; it poses an option for addressing some of these limitations, and incorporates theory that posits the development of conduct problems in adolescence. This includes Moffitt's (1993) dual taxonomy, the Biopsychosocial Model of Chronic Conduct Problems in Adolescence (Dodge & Pettit, 2003), and previous theoretical discussions on the relationship between disorders and antisocial behaviour (e.g., Hughes, 2015). The aspect that explains the process of antisocial behaviour extends the previously developed theory of the Predictive Agency Model (PAM; Heffernan & Ward, 2017) and its associated consistency as a theory of reasoned behaviour applied to the process of antisocial behaviour. The PAM-NEXT has suitable *External consistency* as it accounts for these external theories.

Unifying power refers to whether the theory brings together previous theory and accounts for related research from a different area. The PAM-NEXT does bring together different theories and incorporates research from neurodisability, in general, alongside literature on the development of antisocial behaviour, and expands the PAM to apply to young people with neurodisability who engage in antisocial behaviour. The PAM-NEXT, in bringing these together, has unifying power as previous research has not considered a similar framework to explain the process of antisocial behaviour with young people with neurodisability, while also addressing limitations of dynamic risk and accounting for the development of antisocial behaviour.

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Fertility or heuristic value refers to the ability of the theory to make new predictions and open up new areas to examine. Importantly, this also relates to the theory's ability to lead to new interventions that were previously not considered. The PAM-NEXT provides a new framework to understand the development of dynamic risk factors in the context of the development of a young person with neurodisability. The PAM-NEXT then considers how these developmental factors, in conjunction with dynamic risk factors, conceptualise and inform each stage of the process of antisocial behaviour for youth. The PAM-NEXT is fertile in providing options for treatment for young people with neurodisability who engage in antisocial behaviour as it provides a framework to unpack these. It also expands our understanding about how developmental aspects and neurodisability have led to the exposure of risk factors and potential causal mechanisms that contributed to the antisocial behaviour. The PAM-NEXT is also fertile as it may also have utility for practitioners working with adults with neurodisability who continued to offend post adolescence. This group would be more complex and would be more likely to have been exposed to more risks in their lifetimes than young people, but the PAM-NEXT could be useful to help practitioners understand why their offending persisted.

Simplicity refers to the number of assumptions the theory makes, and its resulting flow. The relationships specified in developmental history as part of the PAM-NEXT are complex and require appropriate information for the PAM-NEXT to have utility in explaining individual cases. The process of antisocial behaviour within the PAM-NEXT can also be complicated and requires the breaking down of an instance of antisocial behaviour into each of the steps for the PAM-NEXT to have practical utility. Overall, elements are not simple and can be vague, but this is the intention of the framework, to be broad enough so as to increase its utility in working with different cases of young people with neurodisability who engage in antisocial behaviour.

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Lastly, *Explanatory depth* refers to whether the theory can account for underlying causes and processes. The PAM-NEXT falls short on this criterion due to the limitations placed upon it and the intention to construe the focus on behavioural and cognitive phenomena of neurodisability and how these, in some cases, can increase the likelihood of young people engaging in antisocial behaviour when other risk factors are present. However, the PAM-NEXT does implicitly consider the biological basis of neurodisability as part of the model which is covered within the early difficulties part of the model; genetic influences are also implicitly considered under maladaptive parenting in cases where parents have the same genetic neurodisability. Although the PAM-NEXT is limited as it does not consider the neurological causes behind these phenomena explicitly, that was not the intention of the model. Despite this, the PAM-NEXT remains useful in examining the role of developmental histories, neurodisability and exposure to known risk factors and how these operationalise through the process of antisocial behaviour.

Future directions.

One of the important contributions of the PAM-NEXT is that it recognises that the neurodisability some young people present with adds a level of explanation to their antisocial behaviour and how they were exposed to risk factors. This moves away from the current conceptualisation of neurodisability as just an area for specific responsivity, such as in the case of the YLS/CMI 2.0 (Hoge & Andrews, 2011), and provides a framework for how neurodisability would affect every stage of the process of antisocial behaviour. This has implications for future research in terms of examining whether the diagnosis of neurodisability has additive value over known risk factors in the development of risk assessment instruments. This has also been discussed elsewhere, e.g., Bonta & Andrews (2017) mention the potential for a fifth generation of risk assessment that would include neuropsychological risk factors. The inclusion of such factors would tap into elements of

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neurodisability, but would still need practitioners to unpack how they operate within the context of antisocial behaviour – otherwise such instruments would be plagued by the same problems as described in chapter one, where dynamic risk factors are limited in their ability to inform treatment planning. On a practical level, the PAM-NEXT again emphasises the mandate for practitioners to adequately assess young people who come into contact with the justice system, who present with difficulties that may be explained by neurodisability. Some jurisdictions have begun to introduce processes for compulsory screening for neurodisability in youth justice facilities, such as England and Wales (see the Comprehensive Health Assessment Tool: CHAT; Offender Health Research Network, 2013), but further progress needs to be made with youth justice systems worldwide to adequately assess and treat young people with neurodisability who engage in antisocial behaviour. The PAM-NEXT may also have practical utility with adults with neurodisability who have continued to engage in antisocial behaviour after adolescence. This group may require more intensive treatment due to the longevity of their behaviours, but the PAM-NEXT may be useful for practitioners to understand how their behaviours escalated into long term offending.

The PAM-NEXT provides a framework that adds to the literature about neurodisability and antisocial behaviour but would need to be tested for its practical utility in working with young people with these needs. Such testing may consider using the PAM-NEXT with a young person and compare outcomes with another young person who treatment was targeted based on traditional dynamic risk assessments.

Conclusions

The current thesis proposed an extension of the Predictive Agency Model (PAM; Heffernan & Ward, 2017) into the Predictive Agency Model–Neurodisability Extension (PAM-NEXT) to address some of the identified issues with dynamic risk and its relationship to young people with neurodisabilities who engage in antisocial behaviour. This was done

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dually: firstly to address criticisms of dynamic risk assessment and its relationship to treatment, applied to young people who engage in antisocial behaviour; secondly, to address research discussed in Chapter Two suggesting that young people with particular disorders are over represented within youth justice populations. This implies there are significant gaps in treatment that need to be addressed, so as to support prosocial behaviour, but also to support early prevention for vulnerable young people who present with conduct problems. This is a concerning problem and poses legal and ethical challenges when this population is vulnerable and has complex needs but are not having these needs adequately addressed. This is especially relevant when the proportion of disabilities (inclusive of cognitive disabilities) has also been found to be high in prison populations although often these use survey methodologies which likely underestimate prevalence (see Gonzalez, Cannell, Jetelina & Froelich-Grobe, 2016; United States Department of Justice, 2015).

The PAM-NEXT provides a framework to consider the role of neurodisability in the exposure to risk factors and escalation that can lead to antisocial behaviour. The PAM-NEXT supports our ability to understand how these factors inform and operationalise within the process of antisocial behaviour. It is hoped the model is useful for practitioners by helping them consider the systems that are maintaining antisocial behaviour of young people with neurodisabilities, and target in treatment planning. Strength based approaches could then be utilised to help these young people achieve their goals, pro-socially, while also emphasising individual agency as proposed in the GLM.

Neurodisabilities and their relationship to young people's involvement with youth justice has long been a hidden problem and has only recently begun to come to the attention of policymakers. That said, now that it has, it is imperative that it is no longer ignored as these young people deserve the opportunity to live good lives and it is simply not good enough for appropriate treatments not to be available to them. To quote the award-winning

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lyricist Lamar (2009), "...these correctionals ain't for rehabilitation...". Maybe it's about time this changed for young people with neurodisabilities who engage in antisocial behaviour. It is hoped that the PAM-NEXT helps to begin to address some of these issues.

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