

When a Good Thing Goes Bad:

Using personality theory to reconceptualise
overcontrolled pathways to offending

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requirements of Nottingham Trent University
for the degree of Doctor of Philosophy*

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Abstract

This thesis disputes the commonly accepted view that all offending is driven by undercontrolled coping, and in the following chapters compelling arguments are put forward that a substantial proportion of individuals who have committed violent, sexual and/or general offending have too much self-control. Theoretically, this challenges the accepted wisdom in forensic psychology and criminology that self-control is a unidimensional construct that is inversely related to offending, which posits that the lower one's self-control the greater likelihood of criminal behaviour, while higher self-control protects against offending. It is argued in this thesis that the form of the relationship between self-control and offending is not linear, but can be better described as quadratic, where high self-control (overcontrol) is a multi-faceted phenomenon rather than simply the opposite of low self-control.

The systematic review in Chapter 4 is the first synthesis of the extant literature on overcontrol and offending, and this applies for the first time a novel theory of overcontrol (Lynch, 2018a) borrowed from clinical psychology. The mixed studies systematic review confirms that a substantial proportion of people in contact with the criminal justice system could be identified as overcontrolled, with as many as half of forensic psychiatric in-patients and a third of prisoners identified as overcontrolled. Cross-sectional studies were the most robust designs amongst the eligible studies in the systematic review, and overcontrolled individuals were consistently characterised by high levels of restraint, which included high defensive denial, low impulsivity, excessive emotional inhibition, and cognitive and interpersonal rigidity. Two potential overcontrolled clusters have also been confirmed, that is *inhibited suppressors* and *controlled suppressors*. A shared feature is high restraint, but affective and interpersonal functioning is more impaired in the inhibited suppressor than the in controlled repressor cluster.

The original clinical descriptor of the “chronically overcontrolled violent offender” offered by Megargee (1966, p.2) was considered too narrow and incomplete, and its core premise that violent offending by overcontrolled individuals is driven by excessive anger regulation is unsubstantiated (Chapters 4, 5, and 6). It was therefore concluded that Megargee's theory offers limited explanatory value in understanding the concept of overcontrol, and it is contended that the evidence points to a need for an alternative

guiding theory. Lynch's (2018a) newer and more comprehensive neurobiosocial theory of overcontrol, comprises three factors: biotemperamental biases (nature), socio-developmental experiences (nurture), and compulsive self-control (coping). The systematic review reveals that the biotemperamental characteristics and socio-developmental experiences of overcontrolled individuals with convictions have rarely been examined, and these are explored in Chapters 6 and 7, respectively. The coping component is more frequently studied, with some support for the five coping themes and the four markers of maladaptive overcontrol outlined by Lynch (2018a). Initial proof of concept testing in Chapters 6 and 7 confirms that overcontrol is more than an excessive anger regulation issue as proposed by Megargee (1966), rather it is a restricted way of managing emotions and relating. According to Lynch (2018a), this highly restricted and inhibited way of being results in chronic emotional loneliness and often high levels of hidden distress. Expression of these needs for connection and distress are often rare but intense, with some of these episodes of *emotional leakage* bringing overcontrolled individuals into contact with the criminal justice system.

Finally, the findings in this thesis suggest that millions of overcontrolled individuals are in prison and forensic hospitals across the world, with many people being inaccurately assessed and treated using outdated models predicated on undercontrolled coping that emphasise the use of central cognitive-control strategies linked to inhibition to restore normative functioning. Emerging evidence tells us these treatments are at best ineffective and at worse iatrogenic (Low & Day, 2015; Redondo et al., 2019), as overcontrolled individuals do not need to learn more skills to inhibit, rather they need to learn how to relax inhibitory control and increase emotional expressiveness, receptivity, and flexibility. The findings in this thesis indicate that further work is needed to understand overcontrol in a forensic context, and the ethical, practical, and economic challenges associated with identifying this substantial untreated or mistreated forensic population needs urgent attention by policymakers, treatment providers, and researchers.

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Background

I first became interested in the concept of overcontrol almost 20 years ago as a trainee forensic psychologist working with men who had committed spousal homicide and were serving a life sentence. These individuals did not appear to fit the current models being promoted in the then emerging fields of risk assessment and offending behaviour programmes, which were predicated on a positive correlation between offending and low self-control. I recall trying to make sense of this mismatch between what I saw in the clinic and what my professional elders at the time told me I should be seeing. I remember raising the idea that some people who have convictions for violence appear to have too much self-control, only to be silenced with “that theory [Megargee’s] is debunked” and given a look that indicated I should remember my place as a lowly trainee.

Never being one to have my intellectual curiosity stifled, I began researching the concept of overcontrol, reading Edwin Megargee’s ideas, Ron Blackburn’s work, and Jack Block’s comparable notion of ego control. I later moved on from the concept as other equally interesting intellectual ideas caught my attention, studying various models of therapy. However, again and again, I was confronted with these similar people who had too much self-control and did not respond to traditional forensic interventions. Similarly, in my own journey exploring various brands of therapy and immersing myself in them through being a client, I found treatments predicated on improving self-control alien to me. Like my overcontrolled service users, I could inhibit even the “big stuff” ad infinitum.

Bizarrely, on a Saturday afternoon in London in 2014, I found myself bunking off one therapy training session to attend another on the topic of *Radically Open Dialectical Behaviour Therapy* (RO-DBT). I thought it would be hard to change models from in-depth trauma processing training to a behavioural intervention, but through some strange coincidence it was quite easy. Both treatments had adopted neuroscience as a core evidence base and incorporated Stephen Porges’ polyvagal theory into the treatments. I found myself in a new world of nervous systems, perceptual coding, evolutionary response tendencies, and bodily processing, and away from the safe cognitive-regulation approaches driven by our frontal lobes evident in many offending behaviour programmes of the time. Lynch’s neurobiosocial model of overcontrol answered so

many professional and personal questions, and this started a dialogue that changed my life, the lives of some pioneering colleagues who trusted me enough to go on one of my off-the-wall intellectual forays, and most importantly the lives of service users.

In 2015, we started the first forensic RO-DBT treatment service in the world, and we went on to introduce this transdiagnostic treatment across Rampton Hospital. My colleagues there have continued this ground-breaking work, and slowly, the concept of overcontrol and crime is becoming known again. Forensic services using RO-DBT are popping up across the UK and Ireland, and recently HMP Frankland and the Acorn project at HMP Whatton adopted RO-DBT-inspired ideas into their treatment programme. Dissemination of the findings from this PhD has been an integral part in convincing others that perhaps there is an overcontrolled pathway to crime, and that failure to consider this means that many people in prison and hospital are being ineffectively treated and possibly detained way beyond what is needed to manage risk.

Dissemination

Publications or Submitted for Publication

- Bacon, L. Longfellow, E. & Hamilton, L.J. (2020). Don't Get Mad, Get Even!: Overcontrol and Multiple Victim Violence. In G.A. Crews (Eds), Handbook of Research on Mass Shootings. and Multiple Victim Violence (pp. 193-200), Hershey, PA, IGI Global.
- Hamilton, L. (submitted for publication). The perils of high self-control: A systematic review of maladaptive overcontrol and offending.
- Hamilton, L., Bacon, L., & Longfellow, E. (submitted for publication). The outsider, inside: Evaluation of Radically Open Dialectical Behaviour Therapy.
- Hamilton, L., Bacon, L., Longfellow, E., & Tennant, A. (2018). Not everything is as it seems: RO DBT and overcontrolled disorders in forensic settings. *The Behavior Therapist*, 41(3), 157–160.
- Hamilton, L., Hempel, R., Lynch-Smith, E., & Lynch, T. (in preparation). Generalisation of Lynch's neurobiosocial theory of overcontrol to forensic service users.
- Hempel, R., Booth, R., Giblin, A., Hamilton, L., Hoch, A., Portner, J., Tomcik, N., Rushbrook, S., Simic, M., Hunt, K., & Wolf-Arehult, M. (2018c). The implementation of RO DBT in clinical practice. *The Behavior Therapist*, 41: 161–73.

Conference Presentations

- British Association for Behavioural & Cognitive Psychotherapies (2016, June 14–17). Undercontrolled or overcontrolled: That is the question: Using evidence-based transdiagnostic theory to guide clinical decision-making. 44th Annual BABCP Conference, Belfast, UK.
- International Association of Forensic Mental Health Services (2017, June 13–15). Convenor of symposium When self-control gets out of control: A new approach to understanding, assessing, and treating over-controlled conditions in offenders. 17th Annual IAFMHS Conference, Split, Croatia.
- European Society for the Study of Personality Disorders (2018, September 27–29). Convenor of symposium It's time to revisit the idea of the over-controlled offender: Examining Lynch's new over-control theory in a sample of severely

personality disordered offenders. 5th International Congress on Borderline Personality Disorder and Allied Disorders, Sitges/Barcelona, Spain.

Workshops

- *Introductory training in Radically Open Dialectical Behaviour Therapy*, Rampton Hospital, Nottinghamshire (various workshops 2015, 2016, 2017, 2018).
- *Breaking the enigma: Overcontrol and offending*. British Psychological Society, Division of Forensic Psychology, Invited Workshop (2019)

International Expert Groups

- *International RO-DBT Senior Clinicians Group: Forensic Expert*
- *International Research Steering Group RO-DBT: Forensic Expert.*

Key Terms

Bioperament: a characteristic or habitual inclination or mode of emotional response, involving biological as well as genetic precursors, that affects one's perception and regulation of emotions.

Detail-focused processing: a style of integrating sensory stimuli that is characterised by paying much more attention to the parts than to the whole ("missing the forest for the trees").

Emotions: defined as evolutionarily prepared and learned response tendencies triggered by unconditioned or conditioned stimuli that function to motivate actions, communicate intentions, and, at least in humans, facilitate the formation of close social bonds essential for individual and species survival.

Emotion inhibition: is the active quashing of internal emotional experiences, and their evolutionarily potentiated or learned response tendencies.

Emotional leakage: the expression of emotion at higher intensity than one would generally feel comfortable exhibiting.

Flat face: a facial expression devoid of perceptible emotion

Mixed studies systematic review: combines quantitative, qualitative and mixed method data from primary studies or integrates quantitative and qualitative evidence to create a breadth and depth of understanding that can confirm or dispute evidence and ultimately answer the review question/s posed.

Overcontrol: a restricted style of coping which results from a convergence of core temperamental and environmental influences and becomes increasingly rigid over time as a function of intermittent reinforcement.

Self-control: what one does or does not do to steer one's behaviour towards desired goals and end states, it is a set of skills, capacities, and behaviours that we use.

Self-regulation: is considered a broader overarching construct, which allows people to formulate goals, standards, thoughts, processes, and actions towards desired end states, as well as to monitor any discrepancies between their current state and these desired end states.

Social-signalling, that is the capacity to signal cooperativeness and establish social connectedness with others.

Trait: a stable pattern of behaviour moderated by biology as well as by the environment.

Undercontrol: an overly expressive and disinhibited style of coping which results from a convergence of core temperamental and environmental influences and becomes increasingly erratic and dramatic over time as a function of intermittent reinforcement.

Chapter 1: Introduction

1.1 Background

The idea that some individuals with a criminal conviction may have too much rather than too little self-control has been largely ignored in forensic theory and practice. It is contended in this thesis that this lack of interest in maladaptive overcontrol amongst forensic populations is in part due to the ubiquitous acceptance of the dominant thesis that people with convictions only have problems with low self-control (maladaptive undercontrol). Forensic researchers and practitioners have subsequently been drawn to understanding and addressing undercontrolled coping, leaving the potential link between offending and overcontrol relatively unexamined. This fixated gaze is especially concerning because emerging research shows that overcontrolled individuals with convictions glean little benefit from standard offence-related treatment predicated on undercontrolled coping (Low & Day, 2015; Redondo et al., 2019). Limited access to responsive treatment is ethically and practically unacceptable, as it places the public at risk and denies individuals detained opportunities to develop and progress. It is especially concerning as a new specialist psychological intervention, Radically Open - Dialectical Behavioural Therapy, is showing unprecedented success in treating people with maladaptive overcontrol (Lynch et al., 2013, 2020). The aim of this thesis is to systematically revisit the idea of overcontrol and offending, and the structure of the subsequent chapters are outlined in Figure 1 below, along with the research aims and the design of each of the studies.

1.2 Pictorial representation of research studies and structure of thesis

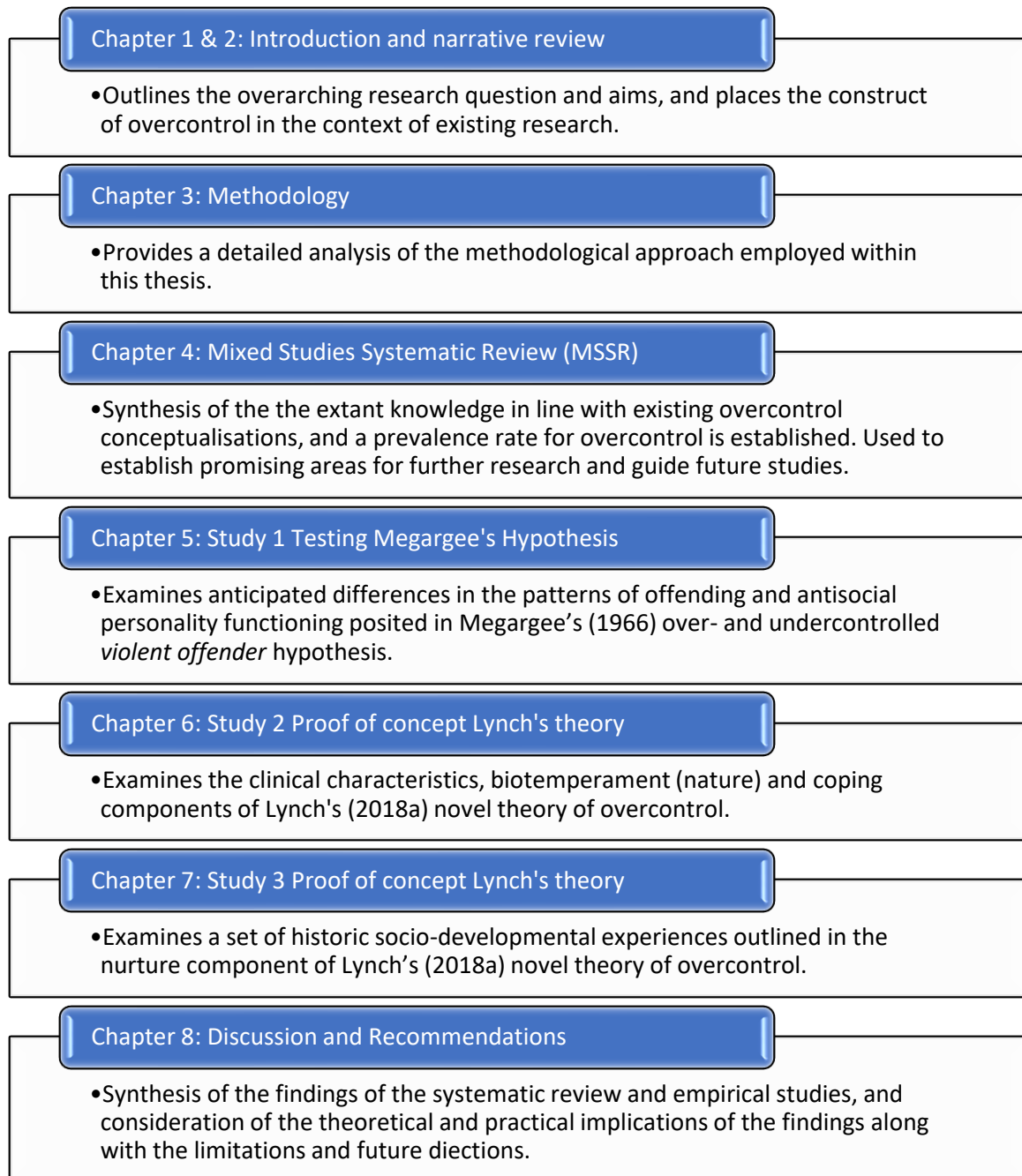


Figure 1: Outline and structure of the thesis

1.3 Research content

Chapter 2 place the construct of overcontrol in the context of existing research. Pertinent parallel constructs are considered, such as self-control and dimensional models of psychopathology and personality, in particular internalising and externalising spectra. Next, Megargee's (1966) original theory of overcontrol and violent offending is re-examined, followed by an examination of Lynch's (2018a) new neurobiosocial theory of overcontrol, applied for the first time to forensic issues. This chapter highlights the potential that a substantial proportion of forensic populations may present with excess self-control and hence overcontrol. There is a necessity however for a comprehensive review of existing research to disentangle contradictory findings about overcontrol, and to illuminate the extent and nature of the problem.

Chapter 3 outlines the methodological approach employed within this thesis. It starts by providing an overview of the philosophical stance and some of the ethical challenges and considerations faced whilst designing and conducting this research. The methodological aspects of the empirical chapters are discussed individually, firstly presenting the systematic review and then the three empirical comparison studies. The rationale for the overall methodology, along with the measurements used, sampling, and methods of analysis, are examined.

The broad aim of the systematic review in Chapter 4 is to take stock of and synthesise extant knowledge. It is anticipated that this will advance our understanding of overcontrol amongst forensic populations, help theory development, identify promising areas for further research, and guide future hypothesis generation and study design. The systematic review had three primary stages. First, a preliminary quantitative synthesis of all published and unpublished forensic studies between 1962 and 2019 investigating overcontrol (high self-control) and criminal behaviour was conducted. This initial step helped to establish knowledge about academic interest in this topic area over time and extract trends in research design and data analysis. The amount and type of research was also examined in this preliminary stage to confirm whether the data would lend itself to integration techniques beyond a narrative synthesis, such as meta-analysis. Second, the review attempted to clarify a prevalence rate for

overcontrol based on prior forensic research, followed by theory testing. The systematic review first examined Megargee's overcontrol theory, discerning any patterns in antisocial personality, criminal behaviour and victimology amongst overcontrolled individuals with convictions. Third, the extant literature was synthesised in terms of the three overarching domains of Lynch's overcontrol theory, discerning patterns in biotemperamental, socio-developmental, and coping characteristics.

Chapters 4–6 compare over- and undercontrol in forensic in-patients in terms of clinical, forensic, and socio-developmental characteristics, respectively. The idea that some people with criminal convictions have too much self-control was first proposed by Megargee (1966). Since then, the concept has had a turbulent history and been relegated to the vaults of time due to inconsistent verification of the posited characteristics of overcontrol. Chapter 4 takes learning from the systematic review to design a study examining anticipated differences in the patterns of offending and personality functioning posited in Megargee's (1966) seminal paper. This study uses pre-existing data on criminal convictions, offence characteristics, and diagnoses to explore whether the overcontrolled individuals with convictions are less antisocial, less violent, and "*one-off violent offenders*" (p. 2).

Chapter 5 examines Lynch's (2018a) novel transdiagnostic neurobiosocial theory of overcontrol, which broadens and strengthens current forensic conceptualisations (Megargee, 1966). This chapter considers postulated differences between over- and undercontrolled individuals in biotemperament (nature) and coping characteristics as outlined by Lynch (2018a), as well as examining the excessive anger regulation component central to Megargee's description of overcontrol.

The final empirical paper, Chapter 7 in this thesis, examines a set of specific socio-developmental experiences outlined in the nurture component of Lynch's (2018a) theory of overcontrol. These sociobiographical influences can be historical (childhood trauma, past learning) or contemporary (present living conditions, new learning). In essence, socio-developmental experiences are posited by Lynch (2018a) to intermittently reinforce overcontrolled biotemperamental biases, resulting in the emergence and maintenance of maladaptive overcontrolled coping. This chapter compares the experiences of over- and

undercontrolled forensic in-patients growing up, specifically childhood maltreatment, school adjustment, childhood stability and peer relationships.

1.4 Research question and aims

The overarching research question this thesis aims to examine is the relationship, if any, between overcontrol (high self-control) and offending. The initial aim is to confirm the prevalence of overcontrol amongst forensic populations, as this would provide evidence to challenge the dominant thesis in forensic psychology that low self-control is the single most critical risk factor in explaining criminal behaviour and that high self-control is a protective factor. Having established the prevalence of overcontrol, the subsequent aims of this thesis will be to:

- Synthesise and integrate existing knowledge about overcontrol and offending.
- Test the veracity of Megargee's original forensic theory of overcontrol.
- Apply Lynch's novel neurobiosocial theory of overcontrol to a forensic population for the first time and begin to test proof of concept using a sample of males referred to a specialist personality disorder treatment service in a high secure hospital in the UK.
- Distinguish, if any, the unique forensic, clinical and socio-developmental characteristics which may differentiate between over- and undercontrolled individuals with a conviction.

Chapter 2: Literature Review

A central tenet of this thesis is that our understanding of the quiet person who offends despite superior capacity for self-control is limited. Understanding what drives offending amongst individuals who have too much self-control is critical, especially as emerging research confirms that this group does not respond favourably to standard forensic treatments predicated on undercontrolled coping (Low & Day, 2015; Redondo et al., 2019). Delivery of ineffective treatment for overcontrolled individuals with forensic histories could be resulting in unnecessary referrals to expensive specialist treatment services which cost the UK taxpayer millions of pounds a year (Pickersgill, 2013) and perhaps depriving people of their liberty unnecessarily. Being able to accurately identify and treat maladaptive overcontrol in forensic populations is clearly an urgent ethical, practical, and economic need. The risks attached to not investing in this forgotten area of criminal behaviour are clearly high: for the individuals with convictions, for professionals delivering ineffective and possibly iatrogenic treatments, and for wider society.

2.1 Self-Control and Society

Self-control has been termed a hallmark of adaptation (De Ridder et al., 2012), a critical competency associated with a myriad of healthy behaviours and successful life outcomes (De Ridder et al., 2012; Tangney et al., 2004; Kaur et al., 2015). Conversely, low self-control and failures in self-control have been linked cross-sectionally and longitudinally with a broad spectrum of personal, legal, and social problems, and are commonly thought of as maladaptive and undesirable (Moffitt et al., 2011; Vazsonyi et al., 2017). Despite the high value placed on self-control, there remains considerable controversy as to how to define and measure the construct (Duckworth & Kern, 2011). The boundaries between self-control and other similar constructs, such as willpower, habit formation, behavioural constraint, desire, self-regulation, and impulsivity, remain unclear. A full review of these complex conceptual debates is beyond the scope of this thesis (see Kotabe & Hofmann, 2015), but for conceptual precision, it is important to briefly examine the difference between the two central concepts self-regulation and self-control. Commonalities across self-control theories are outlined, and finally a definition of self-control is provided.

Self-regulation closely resembles self-control, with the boundary between the constructs often blurred and the terms used interchangeably (Gillebaart, 2018). In this thesis, self-regulation is considered a broader overarching construct, with self-control being one of its components (Gillebaart, 2018). Self-regulation allows people to formulate goals, standards, thoughts, processes, and actions towards desired end states, as well as to monitor any discrepancies between their current state and these desired end states (Carver & Scheier, 2012). Self-control is what one does or does not do to steer one's behaviour towards desired goals and end states. It is a "set of skills, capacities, and behaviours that we need to use or operate in a self-regulation feedback loop" (Gillebaart, 2018, p. 4).

Many different disciplines have contributed to our understanding of self-control, resulting in diffuse terminology and many theoretical accounts of the construct (for reviews, see Booth et al., 2018; Burman et al., 2015; Nigg, 2017). Existing theories generally agree that self-control involves both an inhibitory and an initiatory component, and it is a resource that can become depleted (De Ridder et al., 2012). The inhibitory aspect of self-control typically entails the ability to exert effortful inhibition over immediate urges, impulses, behaviours, and desires for larger rewards later. This aspect of self-control is associated with using higher-order cognitive functions to actively resist and repress one's immediate preferences, that is, delaying gratification in the pursuit of distal goals. Inhibition theories of self-control are also associated with predicting undesired behaviour (Ainslie, 1975; Fujita, 2011; Metcalfe & Mischel, 1999; Mischel et al., 1989). The initiatory component of self-control is associated with initiating or supporting engagement in a behaviour that may be unpleasant or otherwise undesired in order to draw a person closer to a desired longer-term goal (Ainslie, 1975; Mischel et al., 1989; Kirby & Herrnstein, 1995).

Self-control can also be a state and/or disposition (a trait) in nature (Tangney et al., 2004). State self-control varies across situations and time, being influenced by previous attempts (Baumeister et al., 1998; Muraven & Baumeister, 2000), mood (Fishbach & Labroid, 2007; Tice et al., 2007), working memory capacity (Hofmann et al., 2008; Schmeichel, 2007), and motivation (Muraven, 2007). State-based theoretical accounts suggest high self-control "makes it easier to sustain attention, suppress emotional and behavioural impulse responses, and ultimately attain long-term goals" (Booth et al., 2018, p. 3768). Individuals with low self-

control are likely to give in to impulses and temptations in the moment because they have trouble anticipating the long-term costs of their behaviour or they lack the skills to inhibit the urge to consume immediate rewards (Duckworth et al., 2016). Those with low self-control are also less likely to suffer or tolerate doing unpleasant tasks to achieve long-term goals.

These definitions of self-control are the basis for research into delay of gratification and temporal discounting, and as such, they are often measured using psychometrics and the “marshmallow test” (for reviews, see Metcalfe & Mischel, 1999; Mischel et al., 1989). Dispositional self-control is more stable across situations and time, with a trait-based conceptualisation of self-control emphasised in personality work. As people differ in the amount of trait self-control they have available, some will be prone to running out of this resource more quickly than others. Those with depleted self-control have been found to experience more negative affect, be less able to regulate their emotions after exertion, perceive situations as more difficult, and put in less effort than subjects who had not used their self-control beforehand (Hagger et al., 2010). People with high trait self-control not only have greater self-control capacity compared to those with low self-control, but they also have skills and behavioural habits that support more efficient resolution of self-control dilemmas (Gillebaart et al., 2016). For instance, Gillebaart & De Ridder (2015) argued that individuals with high self-control have more automatised, smart, or effortless self-control strategies, and these habitual responses require less effort to implement, and they exert less pressure on the limited pool of self-control resources. Ent et al. (2015) confirmed that individuals with high self-control were also better at creating environments that are congruent with their long-term goals, thereby reducing the number of self-control dilemmas experienced and valuable self-control resources needed to deal with them. An example of such a strategy is proactive avoidance of temptation and distractions (Ent et al., 2015; Gillebaart & De Ridder, 2015).

In summary, a commonality across self-control theories is the focus on a person’s capacity to alter dominant immediate responses and to regulate behaviour, thoughts, and emotions in line with a desired end state (Booth et al., 2019; Nigg, 2017). Generally, the more self-control a person has, the more amenable they are to establishing an optimal fit between them and their environment, and in so doing acquire many beneficial social and personal outcomes. It is generally assumed that self-control is a conscious and effortful form of regulating internal

motivators to act, and it helps promote desirable behaviour and inhibit undesirable behaviour. Those with high trait self-control have access to a broader and more established range of self-control strategies to guide behaviour and shape the environment to meet their desired end states (Gillebaart, 2018; Kotabe & Hofmann, 2015).

2.2 Self-Control, Psychopathology, and Offending Behaviour

Self-control exponentially strengthens as a child develops, being shaped by a combination of genetic and environmental factors (see Bridgett et al., 2015; McClelland et al., 2015; Rothbart et al., 2006). A person's self-control level at a young age, possibly as young as 3–4 years, can predict their cognitive and self-regulatory skills in adolescence and adulthood (Shoda et al., 1990). For instance, Moffitt et al. (2011) followed a cohort of 1,000 New Zealanders from birth to age 32, along with another cohort of 500 sibling pairs, and found that self-control was positively correlated with better life outcomes. Childhood self-control also predicted later-life physical health, substance dependence, financial success, and criminal offences, even after controlling for other factors like intelligence and social class (Moffitt et al., 2013). Multiple meta-analyses and empirical studies have also confirmed a positive correlation between self-control and life outcomes, with higher self-control repeatedly associated with:

- better physical and mental health later in life (Caspi et al., 1998; Daly et al., 2015);
- more effective coping skills (Gailliot et al., 2007);
- better grades and academic achievements (Tangney et al., 2004; Duckworth et al., 2019);
- better-quality interpersonal relationships (Vohs et al., 2011);
- higher self-esteem (Tangney et al., 2004);
- better job prospects and earnings in adulthood (Daly et al., 2015);
- fewer convictions and generally less trouble with the law and antisocial behaviour (Tangney et al., 2004; De Ridder et al., 2012; Daly et al., 2015; Moffitt et al., 2011).

Conversely, lower self-control and failures in self-control have been linked cross-sectionally and longitudinally with a broad spectrum of personal, legal, and social problems. Compared to children with high self-control, those with low self-control are more likely to exhibit lower

levels of school readiness, poorer academic performance, behavioural problems, drug use, mental health difficulties, and earlier involvement in antisocial behaviour (Ayduk et al., 2000; Duckworth et al., 2012; Moffitt et al., 2011; Buckner et al., 2009). Similarly, adolescents with low self-control have been found to have elevated rates of teenage pregnancy and legal sanctions, and engage in more health-risk behaviours, such as increased use of alcohol, tobacco, and marijuana, and having a higher saturated fat intake (De Ridder et al., 2012; Wills et al., 2007). Children and adolescents with low self-control were also more likely to be diagnosed with attention deficit hyperactivity disorder (ADHD), anxiety, depression, addiction issues, conduct disorder, and other externalising disorders (Anastopoulos et al., 2011; Moffitt et al., 2011; Nigg, 2017; Strauman, 2017).

As adults, individuals with low self-control have also repeatedly been identified as more likely to have problems with substance abuse (Cicchetti & Handley, 2019), impulse buying (Baumeister, 2002), financial debt (Gathergood, 2012), gambling (Baumeister et al., 1994), maladaptive eating patterns (Elfhag & Morey, 2008), procrastination (Tice & Baumeister, 1997), greater difficulty inhibiting negative emotional responses (Kieras et al., 2005), more problems in close relationships (Finkel & Campbell, 2001), and bipolar disorder and Cluster B personality disorders (Turner et al., 2017). Adults with low self-control also use physical and verbal aggression more frequently and engage in more rule-breaking behaviour, including risky driving, not wearing seatbelts, committing fraud, and breaking the law (Tangney et al., 2004; Pratt & Cullen, 2000; Vazsonyi et al., 2001). Studies from psychiatry, psychology, criminology, and neuroscience have all consistently associated low self-control with psychopathology and offending behaviour. Indeed, the association between low self-control and greater risk of arrest, criminal convictions, imprisonment, and recidivism is so well established, it is hard to deny its importance as a risk factor for criminal behaviour (for reviews, see Pratt & Cullen, 2000; Britt & Gottfredson, 2003; Gottfredson, 2006; Goode, 2008).

2.3 Relationship between Self-Control, Crime, and Psychopathology

Implicitly or explicitly, the functional form of the relationship between self-control and offending is typically considered to be linear: the more self-control a person has, the less likely they are to develop psychopathology or engage in criminal behaviour. For instance, one of the

most cited and influential theories, Gottfredson and Hirschi's (1990) general theory of crime, proclaims self-control as the single most critical factor explaining any form of criminal behaviour, delinquency, or other similar aberrant acts. Gottfredson and Hirschi posit that the tendency to "pursue short-term gratification without consideration of the long-term consequences" increases the probability of engagement in criminal behaviour (Gottfredson & Hirschi, 1990, p. 177). Conversely "high self-control effectively reduces the possibility of crime—that is, those possessing it will be substantially less likely at all periods of life to engage in criminal acts" (p. 89).

This essentially linear view of the relationship between self-control and offending dominates forensic theory and practice (Day et al., 2008), and low self-control is a focal point in risk-assessment tools (Douglas et al., 2013; Wong & Gordon, 2006), psychometric measures, and staff-observation measures (Dickens et al., 2020). Forensic interventions similarly emphasise restoration of "normal" functioning by targeting self-control for improvement (Day et al., 2008; Hennessy et al., 2020; van Genugten et al., 2017). Whilst the linear model of the relationship between self-control and offending is parsimonious, it is only supported by correlational studies. It also assumes that self-control is unidimensional, and this does not reflect current theoretical ideas about the concept of self-control as a multi-faceted dimensional construct (Nilsen et al., 2020)

Strikingly little attention has been given to comprehending the precise nature of any causal effect that self-control has on offending, and the idea that you can never have enough self-control is currently unsubstantiated. For instance, the consequences of having high self-control "could mean strikingly different things depending on whether self-control is a skill, a personality trait, or a tendency" (Brownstein, 2018, p. 588). If self-control were a skill or capacity, then having a very large amount of it would be a good thing, making one an expert in controlling impulses, urges, emotions, etc. However, a person doing something excessively because of an innate disposition or tendency regardless of context would lead to different conclusions, with inflexible responding the essence of many forms of psychopathology and personality impairment.

Inhibiting emotional urges when the situation calls for emotional expression would be perceived as socially abnormal and potentially dangerous. For example, inhibiting the urge to

cry when someone told you that a loved one had passed away would be perceived as odd by others, and suppressing an urge to run when faced with someone brandishing a knife would be dangerous. Excessive inhibition in situations where emotion is called for is clearly unhelpful, and if this is habitual and applied indiscriminately, it could result in social rejection, risky behaviour, and negative evaluations by others. Excessive inhibition of urges, impulses, and emotions, along with excessive engagement in unpleasant or otherwise undesired behaviours and inflexible use of self-control strategies regardless of context, are central to Lynch's (2018a) conceptualisation of maladaptive overcontrol.

The author contends that a quadratic relationship between self-control and offending is better supported by the evidence than a simple linear relationship; that is, both extremes are associated with a greater probability of offending. Mears et al. (2013) partly confirmed this hypothesis using data from a large longitudinal American youth study ($N = 11,353$), and causal modelling revealed that a curvilinear relationship best captured the association between self-control and offending. The linear association between self-control and offending diminished at lower and higher thresholds, with youths who had very low or very high self-control offending violently and non-violently (Mears et al., 2013). Clearly, the functional form of the relationship between self-control and offending needs further exploration, but it is unlikely to be linear. A differential effect is highly probable, with too much self-control considered equally maladaptive and disadvantageous as too little self-control (for a review, see: Bohane et al., 2017).

2.4 Dimensional Frameworks

The notion that self-control is a unidimensional construct goes against current theoretical understandings in psychiatry and psychology (Cuthbert & Insel, 2013; Insel et al., 2010; Kotov et al., 2018). Research into and treatment of psychopathology and personality dysfunction is seeking to re-orient and restructure, moving away from simple categorical models and instead offering new multimodal hierarchical dimensional frameworks based on empirically validated constructs (Cuthbert & Insel, 2013; Insel, 2013; Kotov et al., 2017, 2018). This paradigm shift, which is based on an etiological or quantitative nosology, has been described by some as “a march to freedom from the DSM's epistemic prison” (Hyman, 2010, p. 157).

The Diagnostic and Statistical Manual of Mental Disorders (DSM) and the International Classification of Diseases (ICD) are the most ubiquitously used classifications systems in the administration of healthcare worldwide. They guide research and treatment, provide a standardised language for mental disorders, and make the diagnostic process more transparent (Kendell & Jablensky, 2003). Increasingly, these classification systems are being criticised, with dimensional-based phenotypes consistently producing more favourable results when compared to categorical diagnoses (Ruggero et al., 2019). Dimensional approaches to classification of mental disorders have outperformed traditional systems in accounting for functional impairment, reliability, prognosis, and explaining why disorders from different DSM classes respond to the same treatment. For example, selective serotonin reuptake inhibitors (SSRIs) have been prescribed to treat social phobia, sexual preoccupation, and depression, suggesting that these three very different categories of mental disorder have a shared aetiology associated with serotonin depletion. Dimensional models also align much better with “the genetic architecture of mental disorders and with the effects of environmental risk factors, such as childhood maltreatment” (Kotov et al., 2018, p. 24). In comparison, examination of traditional diagnostic systems like DSM “have not yet established the existence of a single mental disorder as a discrete categorical entity” (Bakker, 2019, p. 4).

The existence of comorbidity, low symptom specificity, diagnostic instability, and heterogeneity within DSM disorders is unequivocal (Andrews et al., 2002; Kessler et al., 2005; Ormel et al., 2015; Teesson et al., 2009). Conceptually, this may mean that “some unitary conditions have been split into multiple diagnoses, which co-occur frequently as a result, indicating the need to redraw boundaries between disorders” (Kotov et al., 2017, p. 457). The mechanisms underpinning DSM disorders remain equally elusive, as does the synchronicity between DSM mental disorders and emerging findings from genetics, neuroscience, animal studies, and behavioural science (Cuthbert & Insel, 2013; Kotov et al., 2017).

Practically, unreliable diagnostic classification systems likely distort research findings, treatment initiatives, and clinical decision-making, and minimise the probability of effective precision healthcare. For instance, Cuthbert and Insel (2013) highlighted that despite ever-increasing amounts of money being spent on research and healthcare services, “mortality has not decreased for any mental illness, prevalence rates are similarly unchanged, detection of

disorders is delayed well beyond generally accepted onset of pathology, and there are no well-developed preventive interventions” (p. 2). Arbitrary boundaries delineating absence or presence of a disorder also mean that large numbers of people who are suffering with subthreshold symptoms are excluded from healthcare and forensic treatment services (Ruggero et al., 2019).

Problems associated with applying categorical models to mental disorder and its treatment are evident, and this parallels findings in forensic practice. For instance, categorical models of offending behaviour have proven similarly ineffective in guiding forensic research, treatment decision-making, and treatment initiatives (Mews et al., 2017; Tyrer et al., 2010). Criminal versatility (comorbidity) is the norm in forensic samples (Harris et al., 2011; Piper & Nagy, 2017), and heterogeneity amongst individuals within the same categories of offences is expected (Broidy et al., 2018; Cale et al., 2016; Dixon & Wride, 2020).

Adoption of dimensional models offers an alternative way of conceptualising psychopathology, personality, and correlates of criminal behaviour and could potentially transform forensic mental health research, treatment, and healthcare provision (Mullins-Sweat et al., 2019; Conway et al., 2019). A dimensional psychological construct ranges along a continuum from normal to pathological, with both extremes of the dimension potentially maladaptive. For instance, if the functional form of the relationship between self-control and offending is not linear but is distributed normally on a bell curve, then there is an optimum range of self-control in the middle, and there are maladaptive ranges at either end of the continuum. The self-control range in the middle, based on current forensic research, probably relates in a linear manner to offending (Mears et al., 2013). The maladaptive tails at each end of the bell curve (reflecting too little or too much self-control) both become risk factors for psychopathology (Bohane et al., 2017) and criminal behaviour (Mears et al., 2013; Megargee, 1966).

Acceptance of this paradigm shift means rejection of the idea that specific psychological disorders or categories of offending behaviour require disorder- or offence-specific treatment. For instance, people with sexual convictions have traditionally been provided “sex offender treatment”, a person with a violent conviction referred to “violent offending treatment”, and so on. Given the general problems with category-based approaches, treatment programmes based

on type of offence have unsurprisingly failed to adequately rehabilitate participants (Lösel et al., 2020; Mews et al., 2017). Rehabilitative efforts based on dimensional phenotypes offer an opportunity to rethink forensic interventions and make the march to freedom away from narrow categorical treatments based on the type of crime and predicated on a medical model of intervention.

Transdiagnostic approaches to treatments offer an alternative model of forensic intervention, and they aim to treat a small number of core latent constructs common across people (Eaton et al., 2015; Insel et al., 2010; Ruggero et al., 2019). Dimensional-based transdiagnostic interventions also reduce “othering” and stigmatisation because the core latent constructs being treated are present for all humans in differing quantities. They also provide the opportunity for more precise treatments that target the root of a problem and help shift away from one-size-fits-all approaches, which have plagued the forensic field for decades (Ward & McDonald, 2016; Weaver & McNeill, 2010).

Despite the advantages of dimensional frameworks, they have struggled to gain overall acceptance as the premier approach to classifying mental disorders, and the debates have not gained much attention in forensic practice. A lack of consensus amongst existing dimensional models has been cited as an impediment to embracing this new approach, specifically in the publicly debated DSM-V personality disorder review (Paris, 2013; Skodol et al., 2013; Widiger et al., 2013). Recent developments, such as the publication of the *Hierarchical Taxonomy of Psychopathology* (HiTOP; Kotov et al., 2017), address this major obstacle, providing a consensual dimensional framework. HiTOP is gaining traction both clinically and academically, providing a foundation for a future dimensional classification system that could reasonably underpin mental health research and healthcare provision (Conway et al., 2019; Mullins-Sweat et al., 2019; Ruggero et al., 2019).

HiTOP is based on quantitative nosology and focuses on synthesising existing studies, paying particular attention to empirical constellations of co-occurring signs, symptoms, maladaptive traits, and behaviours. At this transition point, the hierarchical organisation of psychopathology and personality outlined in the HiTOP model still includes references to DSM diagnoses, but it is explicitly dimensional at every level. At its apex is a bifactor model of *spectra* and *superspectra*. The superspectra are thought to reflect general psychopathology factors that have

been identified in longitudinal and twin studies as capturing common genetic vulnerabilities and an overall level of maladaptation (Achenbach & Rescorla, 2003; Markon, 2010; Røysamb et al., 2011; Caspi et al., 2014; Caspi & Moffitt, 2018; Lahey et al., 2011, 2012). The superspectra are positively associated with five spectra, provisionally six, and these are labelled:

- Internalising (or negative affectivity);
- Thought disorder (or psychoticism);
- Disinhibited externalising;
- Antagonistic externalising;
- Detachment;
- Somatoform (provisional).

Factor-analytic research consistently identifies two fundamental dimensions common amongst mental disorders, specifically an internalising and externalising spectrum. These dimensional phenotypes were first identified in child psychopathology and have been consistently replicated in large-scale studies and cross-cultural research involving adolescents and adults (e.g., Kendler et al., 2003; Krueger, 1999; Vollebergh et al., 2001). These core latent constructs, internalising and externalising, are present at all levels of the HiTOP model reflecting an association with chronic forms of psychopathology, as well as being signs and symptoms of common forms of mental disorder and personality dysfunction.

The internalising spectrum involves difficulties with high emotion inhibition and excessive need for structure, and captures comorbidity amongst depressive, anxiety, posttraumatic-stress, and eating disorders, as well as sexual dysfunctions and obsessive-compulsive disorder (Kendler & Myers, 2014). Cluster A and C personality disorders, anorexia nervosa, and autism spectrum disorders are also linked to the internalising spectrum (Lynch & Cheavens, 2008; Riso et al., 2002; Zucker et al., 2007). The externalising spectrum involves difficulties associated with low inhibitory control and, for some, high antagonism. Chronic externalising is associated with Cluster B personality disorders (Kendler & Myers, 2014). The externalising dimension also captures comorbidity amongst substance-use disorders, oppositional defiant disorder, conduct disorder, adult antisocial behaviour, intermittent explosive disorder, and

ADHD (Eaton et al., 2013; Keyes et al., 2013; Miller et al., 2008, 2012; Vollebergh et al., 2001; Forbush & Watson, 2013; Forbes et al., 2016a, 2016b).

Genetic transmission of internalising and externalising disorders has been found to be almost completely mediated by these spectra rather than being disorder specific (Nikstat & Riemann, 2020). Similarly, environmental factors, such as childhood maltreatment, contribute to the spectra more than unique aspects of DSM/ICD disorders, and these are thought to be critical socio-environmental experiences that can shape phenotypic expression (Caspi et al., 2014; Lahey et al., 2012; Eaton, 2014; Keyes et al., 2012; Rodriguez-Seijas et al., 2015; Vachon et al., 2015).

The externalising dimension has clearly been linked to antisocial and criminal behaviour, but the idea of an internalising pathway to offending is relatively unexplored. This is perhaps unsurprising given the pervasiveness of the dominant thesis that offending behaviour is an externalising problem underpinned by low self-control, impulsivity, and emotional dysregulation. This status quo persists despite evidence that self-control is not unidimensional nor is the relationship between self-control and offending linear (Mears et al., 2013; Megargee, 1966).

High rates of psychopathology and personality disturbance associated with maladaptive overcontrol and the internalising spectrum have been consistently identified amongst convicted populations. For instance, Young et al. (2018) reported a prevalence rate of 9% for autistic spectrum disorders amongst a sample of 390 Scottish prisoners, with similar rates reported by Underwood et al. (2016). The prevalence estimate for Cluster A and C personality disorders in forensic populations is consistently around 10% (Eher et al., 2019; Trestman et al., 2007). Coid et al. (2006) also found differential patterns of offending amongst specific personality disorder (PD) clusters. Criminal damage offences were positively correlated with Avoidant PD scores but negatively associated with firearm offences. Obsessive–compulsive PD scores and Dependent PD scores were significantly associated with firearm offences and violence, but Dependent PD was negatively associated with criminal damage. Schizotypal PD scores were significantly associated with arson but negatively associated with robbery and blackmail. Paranoid PD scores were associated with robbery and blackmail but negatively associated with driving offences. The final Cluster A personality disorder, Schizoid PD scores were associated

with kidnap, burglary, and theft. High levels of internalising psychopathology are clearly evident amongst forensic populations, but the mechanism by which the internalising dimension leads to offending behaviour is poorly understood.

Three major personality prototypes, *overcontrolled*, *undercontrolled*, and *resilient*, have consistently been identified in clinical and general-population samples (Asendorpf & Aken, 1999; Bohane et al., 2017; Robins et al., 1996) as well as forensic samples (Blackburn et al., 2008; Low & Day, 2015). The overcontrolled (internalising) and undercontrolled (externalising) personality prototypes have been identified across different sample characteristics (age, nationality, sex, offence groups), different instruments (questionnaire, observational measures, Q sort), different methods of deriving types (cluster analysis, factor analysis), and different judgements involving self- and other-ratings. There is currently limited support amongst forensic samples for a resilient cluster (Widom, 1978; Low & Day, 2015; Herzberg & Hoyer, 2009; Herzberg & Roth, 2006), despite it being consistently identified in general-population studies (Bohane et al., 2017). A common prevalence rate in forensic samples is around 40% for both over- and undercontrolled groups (Blackburn et al., 2008; Henderson, 1982, 1983a; Oljača et al., 2019). However, there is wide variation in the proportions of over- and undercontrolled samples, with settings, sex, and offence type potentially being related. For instance, lower rates of overcontrol were identified in remand and awaiting-trial samples (McGurk, 1978; McGurk & McGurk, 1979), community samples of men with sexual convictions (Smith et al., 1987; Worling, 2001) and samples including females (Widom, 1978; DeLisi et al., 2010). Higher rates of overcontrol have been observed in community samples drawn from groups of men attending intimate partner violence (IPV) treatment (Redondo et al., 2019).

Meaningful differences between the resilient, overcontrolled, and undercontrolled personality types and their tendencies to behave, think, and feel are reflected in the extant literature. The resilient prototype is characterised by a generally well-adjusted personality profile, limited psychopathology, normal levels of anger, and weak-to-moderate crime-supportive attitudes and beliefs in forensic samples (Herzberg & Hoyer, 2009; Herzberg & Roth, 2006; Low & Day, 2015; Widom, 1978).

The hallmark of the undercontrolled prototype is impulsive, emotionally expressive, and adventurous children, who have been shown to be more likely to develop externalising disorders in adolescence and adulthood (Eisenberg et al., 2000; Kendler et al., 2003; Krueger, 1999). As adults, undercontrolled individuals with convictions produce personality profiles marked by poor anger control, high impulsivity, relationship difficulties, and overall high levels of psychological distress (Blackburn et al., 2008; Megargee, 1966; Low & Day, 2015; Redondo et al., 2019). The undercontrolled prototype is also more likely to incur a criminal conviction, spend time in prison, and experience conduct problems growing up (Moffitt et al., 2011).

The archetype of the overcontrolled prototype is emotionally constricted, inhibited, and risk-averse children, who are prone to developing internalising disorders across the life span and grow up to become socially isolated adults (Asendorpf et al., 2008; Chapman & Goldberg, 2011; Eisenberg et al., 2000; Meeus et al., 2011). Overcontrolled individuals with convictions typically produce normal personality profiles on self-report tests, along with high levels of defensiveness, low impulsivity, and elevated inhibitory control (Blackburn et al., 2008; Megargee & Carbonell, 1993). Mixed results have been reported regarding levels of affective distress and interpersonal difficulties, and findings from forensic cross-sectional studies point to the idea that these apparent inconsistencies may reflect two overcontrolled subtypes: controlled and inhibited (Blackburn et al., 2008). The “*controlled*” subtype is characterised by high defensiveness, high inhibitory control, and an apparently more outgoing style with low levels of psychopathology, emotional tension/distress, and interpersonal difficulties (Blackburn, 1986, 1996; Henderson, 1982). The “*inhibited*” subtype is also characterised by high defensiveness and high inhibitory control, but reports moderate–high anxiety, high depression, lower dominance, and a tendency to turn hostility inward (Blackburn et al. 2008). Interpersonally, the “*inhibited*” subtype has been found to be extremely shy, socially anxious, and introverted, and to struggle managing relationships (Blackburn, 1986, 1996; Henderson, 1982).

Lynch et al. (2018) similarly identified two overcontrolled subtypes. The “*overly disagreeable*” subtype is characterised by a motivation to be perceived as competent but not compliant, is willing to be disagreeable to achieve an objective, and values correctness over interpersonal relations. The “*overly agreeable*” subtype is characterised by a motivation to be

perceived as competent and socially acceptable. They avoid conflict and social disapproval, preferring to blend into the group, but their social signalling can be disingenuous and incongruent, which may result in others finding them inauthentic and insincere. Lynch's (2018a) subtypes have yet to be empirically verified.

To summarise, the idea of an overcontrolled or internalising pathway to offending has largely been ignored, despite over 50 years of longitudinal and cross-sectional studies demonstrating that a chronically overcontrolled group exists in general, clinical, and forensic populations (Asendorpf & Aken, 1999; Blackburn et al., 2008; Block & Block, 1980; Bohane et al., 2017; Megargee, 1966). Overcontrolled subtypes have also been identified (Blackburn et al., 2008) and posited (Lynch, 2018a), but it is currently unclear whether these are distinct subtypes or whether they instead reflect an overcontrol spectrum.

2.5 Overcontrol and Offending

Unquestioning acceptance of a simple linear relationship between crime and self control – underpinned by a unidimensional model of self-control – has, in this author's opinion, seriously restricted thinking within forensic psychology. It has discouraged detailed analysis of the causal form of the relationship between self-control and crime, hampering critical evaluation of the supposed protective qualities of high self-control both in forensic and clinical psychology. Acceptance of the idea that there may be such a thing as too much (maladaptive overcontrol) as well as too little (maladaptive undercontrol) self-control would be an important catalyst for widespread change in how we conceptualise and treat both clinical conditions or offending behaviour. This thesis addresses the issue of overcontrol and offending, firstly by critically reviewing Megargee's (1966, 1996) seminal work on this topic and secondly by applying the latest theorising on overcontrol developed in clinical psychology to a forensic context.

2.6 Megargee's Over- and Undercontrolled Violent-Offending Typology

Categorising forensic samples as under- or overcontrolled was first proposed by Megargee and Mendelsohn (1962) and developed in subsequent studies. Megargee (1966) did not provide a theoretical account of overcontrol but rather described two types of individuals with violent

convictions: the “*chronically overcontrolled violent offender*” and the “*undercontrolled aggressive violent offender*”. The chronically overcontrolled type is posited to be “often a fairly mild-mannered, long-suffering individual who buries his resentment under rigid but brittle controls. Under certain circumstances he may lash out and release all his aggression in one, often disastrous, act. Afterwards he reverts to his usual overcontrolled defenses” (p. 2). The undercontrolled aggressive type was described as “a person whose inhibitions against aggressive behavior are quite low. Consequently, he usually responds with aggression whenever he is frustrated or provoked. [...] Because of his low level of inhibitions he is likely to be diagnosed as a sociopathic personality, antisocial, or dissocial type” (p. 2).

Megargee’s (1966) clinical descriptions of the individual identified as overcontrolled pinpoints distinct offending profiles, such as one-off, extremely violent offences. Clinically the “*chronically overcontrolled violent offender*” is characterised as exhibiting excessive suppression of anger, high resentment, high defensiveness, and a propensity for rigid behaviour until such times as an explosive outburst occurs when self-control is depleted. Cognitive explanations have subsequently been added to Megargee’s original descriptors, emphasising the aggravating role of cognitive rigidity, excessive cognitive rehearsal, and chronic rumination in driving the person to a tipping point at which they can no longer inhibit and suppress angry feelings (Day, 2009; Howells, 1983).

Megargee and Carbonell (1993) applied the “Algebra of Aggression” (Megargee, 1982; 2011) to explain violent offending amongst over- and undercontrolled youths. The algebra of aggression theory presupposes that the overt act of aggression is the result of an “internal algebra where the net strength of each possible response is calculated and compared with all other responses, and the strongest one is selected” (Megargee & Carbonell, 1993, p. 4). This internal algebra is thought to include five factors that determine the likelihood of an aggressive or violent response occurring. “Instigation to aggression” and “habit strength” are posited to motivate people towards aggression, whereas “inhibitions to aggression” oppose these motivating factors. Inhibitions can be general or specific and can vary as a function of the act, the target, and the circumstances. “Situational factors” encompass those external factors that may facilitate or impede the internal urge being transmuted into an aggressive act, and “reaction potential” consists of the net strength of a given response after the inhibitory factors have been

balanced against the excitatory ones. According to the algebra of aggression theory, the act that offers the most satisfaction at the least cost will be selected.

Megargee's (1966) clinical description of overcontrol would suggest that this group of individuals with violent convictions would exhibit low habit strength for aggression and low instigation to use aggression. Even though these excitatory factors for use of aggression are posited to be low amongst overcontrolled individuals, like any human, they would still experience internal and external motivations to respond aggressively if provoked. High inhibitory control means the overcontrolled individual would rarely act upon these internal provocations. Urges and impulses to react to perceived provocation are instead denied and suppressed, and Megargee supposes that they are accumulated until they eventually breach the threshold of control. In these specific situations, the reaction potential to use aggression is thought to increase dramatically, resulting in occasional but extreme violence, and even homicide (Megargee, 1966; Megargee & Carbonell, 1993).

The *undercontrolled aggressive violent offender*, according to Megargee's (2011) algebra of aggression theory, would be expected to have low inhibitions against aggressive behaviour. According to Megargee's theory, regular use of aggression to successfully solve problems and meet goals would create a high habit strength for aggression amongst undercontrolled individuals with a conviction. Low inhibitions against the use of aggression and high habit strength mean that an undercontrolled individual's physiological and psychological sources are easily provoked and energised to use aggression and violence. If personal, pragmatic, or situational factors impede acting-out in the immediate context, Megargee (1966) speculated that the individual identified as undercontrolled may satisfy their urge to use aggression by engaging in displacement or a less severe aggressive response against the original frustrating agent.

Theoretically, Megargee's (1966) ideas about a possible link between overcontrol and offending challenged the dominant thesis, but he stopped short of providing a specific theory of overcontrol that detailed its aetiology and could guide future research. He instead provided clinical descriptions of overcontrol and speculated about excessive anger suppression being a primary risk factor for violent offending amongst this group of people with a conviction.

The hypothesis that maladaptive overcontrol is a problem of excessive anger regulation has not been consistently confirmed. For instance, D'Silva and Duggan (2010) found forensic psychiatric in-patients identified as overcontrolled had anger profiles in the normal range. Redondo et al. (2019) similarly confirmed this finding. Others found differences in anger regulation between over- and undercontrolled samples; however, this was because of undercontrolled individuals having poor anger regulation rather than overcontrolled individuals having excessive anger control (Low & Day, 2015; Verona & Carbonell, 2000).

The core mechanisms in Megargee's ideas about overcontrol and offending have not been verified, and some have argued that failure to confirm excessive anger regulation in those identified as overcontrolled means that the concept should be abandoned (D'Silva & Duggan, 2010). This conclusion seems premature, and perhaps is a case of throwing the proverbial baby out with the bathwater. Megargee's seminal study and subsequent empirical testing of his ideas have consistently provided evidence that some people who offend have high self-control/overcontrol (Blackburn et al., 2008; Henderson, 1983a;1983b). The link between overcontrol and offending has been verified; however, Megargee's theoretical articulation of the overcontrol construct seems incorrect. The focus on excessive anger regulation is perhaps too narrow, as findings to date suggest more likely issues are excessive inhibition of impulses (Blackburn, 1968; Brad et al., 2014; Frederiksen, 1975; Megargee, 1966; Megargee & Carbonell, 1993; Truscott, 1990), inhibition of thoughts and behaviour (Blackburn, 1968; Frederiksen, 1975; Megargee & Carbonell, 1993; Truscott, 1990), and emotion inhibition in general (Henderson, 1983b; Lane & Spruill, 1980; Quinsey et al., 1983). The absence of a coherent theory means that there are no theoretical explanations for why overcontrolled individuals are more likely to repress, deny, or inhibit aggressive urges, impulses, and feelings, or tolerate unpleasant experiences beyond the ability of most reasonable people (Chambers et al., 2009, 2011). There is also no theoretical account of why overcontrolled individuals choose to offend or why their reaction potential for aggression or violence becomes maximised at times.

Megargee's idea that overcontrol is only associated with violent offending is again not supported by existing research. For instance, people with excessive self-control (overcontrol) have been identified amongst people on remand (McGurk, 1978) as well as those convicted of

non-violent offences (Henderson, 1983b) and sexual offences (Worling, 2001). Identification of overcontrolled samples in non-violent offending populations again has led some to reject the link between overcontrol and offending (Hoppe & Singer, 1977; McGurk, 1978). An alternative conclusion may be that Megargee's original ideas were too specific, and as McGurk (1981) concluded, overcontrol is more likely a personality characteristic than a specific form of violent offending. McGurk's hypothesis has been confirmed by subsequent empirical work, which identified an overcontrolled personality type amongst prison-officer samples (McGurk & McGurk, 1979), clinical samples (Bohane et al., 2017), and in large-scale general-population studies (Asendorpf et al., 2008; Moffitt et al., 2011). It therefore appears that *overcontrol* is not a type of "violent offender" as contended by Megargee (1966), but it is rather a restricted way of coping and/or a latent personality dimension evident across human beings from about age 4–5 years (Asendorpf et al., 2008; Chapman & Goldberg, 2011; Eisenberg et al., 2000; Meeus et al., 2011).

In summary, the construct of overcontrol is clearly as relevant to humans with convictions as it is to all other humans. The aetiology of overcontrol and how the construct links to offending behaviour is, however, unclear. A systematic review of the extant literature would help synthesise existing knowledge on the construct of overcontrol and shine a light on why testing of Megargee's ideas has produced inconsistent findings. It may even provide a road map for promising areas of future research into this novel pathway to offending.

2.7 Lynch's Neurobiosocial Theory of Overcontrol

Lynch (2018a, 2018b) produced a neurobiosocial theory of overcontrol with an accompanying evidence-based treatment, Radically Open Dialectical Behaviour Therapy (RO-DBT). Lynch's theory accounts for the development and maintenance of two superordinate classes or domains of personality dysfunction, undercontrol and overcontrol, which parallel the well-established division between internalising and externalising disorders first introduced by Achenbach and colleagues (Achenbach, 1966; Crijnen et al., 1997).

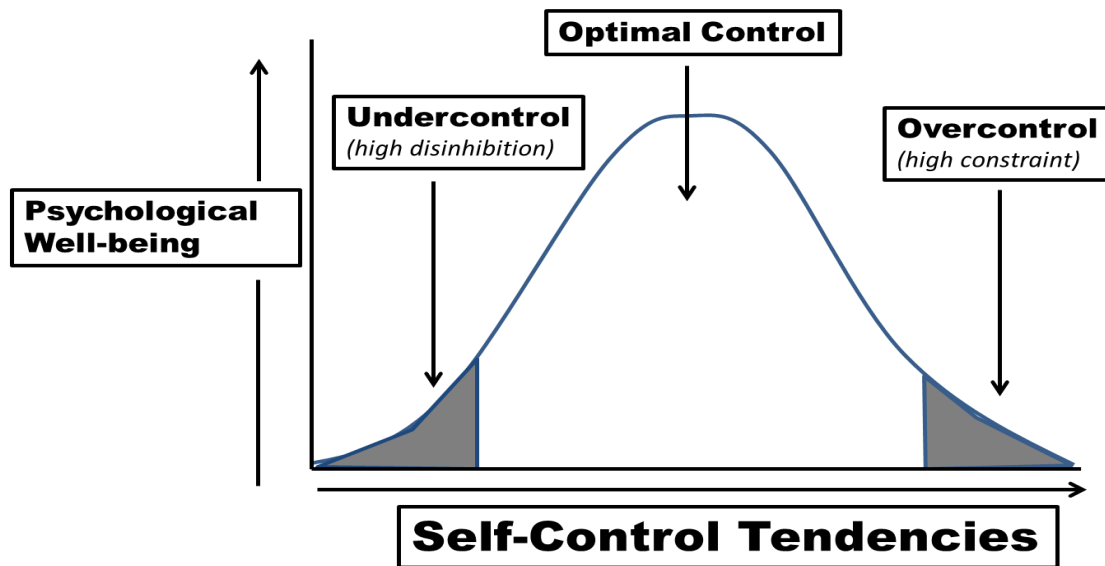


Figure 2: Functional Form of the Relationship Between Self-control and Psychological Well-being (extracted from Lynch, 2015, training slides)

Lynch offers the first multi-faceted explanation of overcontrol, moving away from simple unidimensional ideas where overcontrol is seen as the opposite of the more established concept of undercontrol. According to Lynch, the functional form of the relationship between self-control and negative life outcomes is quadratic (an inverted “U” shape, see Figure 2), whereby extremes of either undercontrol or overcontrol lead to psychological, behavioural, and social problems. Lynch and colleagues link extremes in overcontrol with a range of clinical disorders, such as anorexia nervosa (Lynch et al. 2013), refractory depression (Lynch et al. 2020), and Cluster A and C personality disorders (Lynch, Hempel, & Dunkley, 2015a). With RO-DBT showing promising results in treating these previously retracted clinical conditions (Lynch et al., 2020). Lynch, however, stops short of making the connection between maladaptive overcontrol and offending behaviour, and his original conceptualisations identified antisocial behaviour as an externalising problem associated with undercontrolled coping (Lynch, 2015). Hamilton (2016; 2017a; 2018) has previously made a case for extending Lynch’s ideas on overcontrol to a forensic context, and this was subsequently endorsed by Lynch (2018, p. 30) as a promising area of future research.

2.8 Forensic Application of Lynch’s New Neurobiosocial Theory of Overcontrol

Lynch (2014) defines maladaptive overcontrol as “a restricted style of coping which results from a convergence of core temperamental and environmental influences and becomes increasingly rigid over time as a function of intermittent reinforcement” (p. 5). Lynch’s (2018a) neurobiosocial model of overcontrol outlines three overarching influences: temperament (nature), family/environment (nurture), and self-control tendencies (coping), and these are depicted in Figure 3 and explained below.

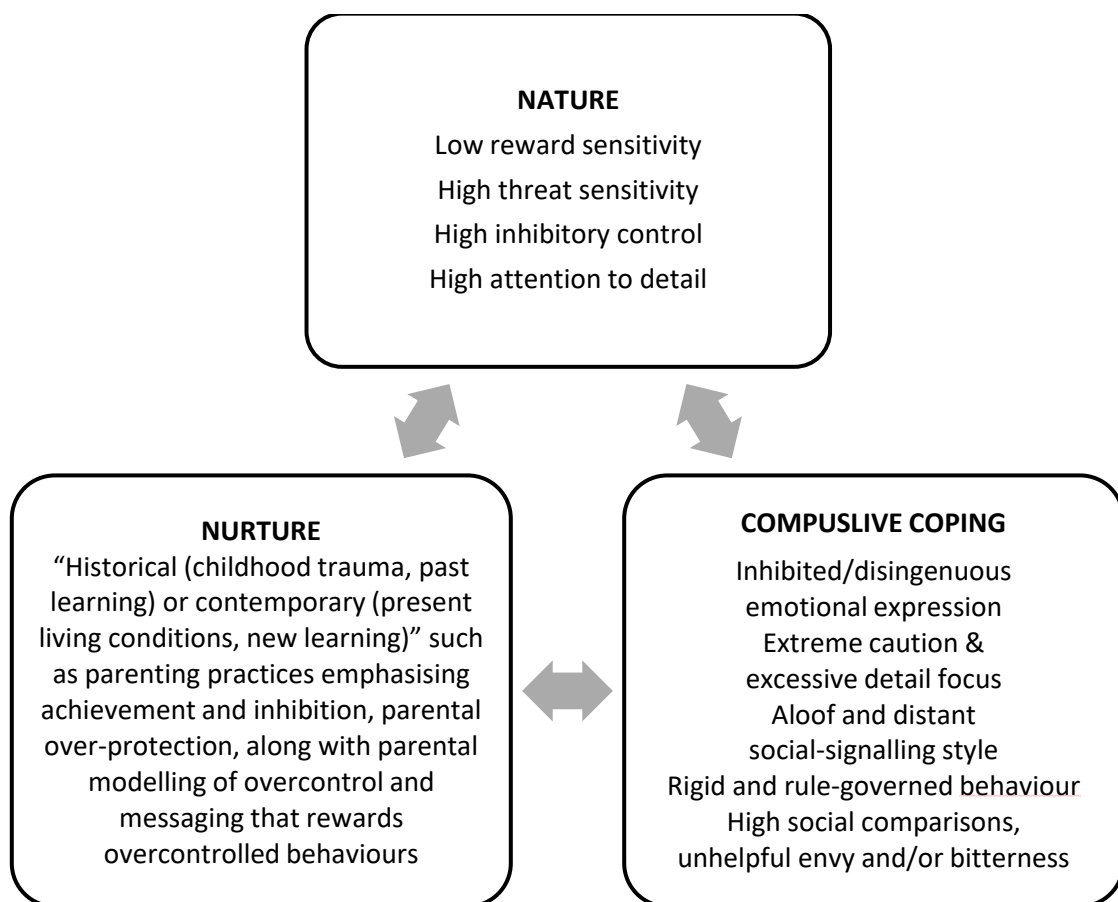


Figure 3: Neurobiosocial Theory for Disorders of Overcontrol (adapted from Lynch, 2018a, p. 47)

Lynch’s (2018a) neurobiosocial explanation outlines the genotypic predisposition (nature component) needed for the emergence of overcontrol, along with the socio-environmental contingencies (nurture component) that support the formation of maladaptive overcontrol and

compulsive coping responses that perpetuate and strengthen overcontrolled tendencies. Unlike Megargee's (1966) ideas, Lynch does not conceive maladaptive overcontrol as a disorder of excessive anger regulation, rather he sees it as a disorder of emotional loneliness. The desired end state associated with self-control amongst individuals identified as overcontrolled is maintaining social acceptance and avoiding emotional loneliness, not excessive anger regulation as first thought by Megargee.

Lynch, (2018a) contends that if inhibition becomes habitual (maladaptive overcontrol), then once-successful self-control strategies can impede attainment of these desired end states. He outlines four core socio-emotional deficits that keep overcontrolled individuals from developing long-lasting bonds and keep them disconnected from the tribe. Maladaptive overcontrol is characterized by four core deficits (Lynch, 2018a, p.8):

1. **Low receptivity and openness**, manifested by low openness to novel, unexpected, or disconfirming feedback; avoidance of uncertainty or unplanned risks; suspiciousness; hypervigilance regarding potential threats; and marked tendencies to discount or dismiss critical feedback

2. **Low flexible control**, manifested by compulsive needs for structure and order; hyper-perfectionism; high social obligation and dutifulness; compulsive rehearsal, premeditation, and planning; compulsive fixing and approach coping; rigid rule-governed behaviour; and high moral certitude (the conviction that there is only one "right" way of doing something)

3. **Pervasive inhibited emotional expression and low emotional awareness**, manifested by context-inappropriate inhibition of emotional expression (for example, presentation of a flat face in response to a compliment) or by insincere or incongruent expressions of emotion (for example, a smile in response to distress, or a show of concern when no concern is actually felt); consistent underreporting of distress; and low awareness of bodily sensations

4. Low social connectedness and intimacy with others, manifested by aloof and distant relationships; a feeling of being different from other people; frequent social comparisons; high envy and bitterness; and reduced empathy

These perceptual and regulatory deficits are thought to be a consequence of three overarching influences: temperament (nature), family/environment (nurture), and self-control tendencies (coping).

2.9 Neuroregulatory Model of Socio-Emotional Functioning

Lynch, (2018a; 2018b) offers a novel neuroregulatory model of socio-emotional functioning (Figure 4), and this underpins RO-DBT and the skills taught on the intervention. The neuroregulatory model separates emotion regulation into internal and external regulation, “thereby accounting for the fact that, especially with overcontrolled patients, there is often a discrepancy between internal emotional experience and how the emotion is expressed externally” (Hempel, Vanderbleek, & Lynch., 2018a, p. 96). Similar to many psychological theories of general aggression (Allen et al., 2018; Crick & Dodge, 1996), Lynch’s (2018a, 2018b) model of emotion also implicates “perceptual encoding factors” which precede “internal modulatory factors” (central-cognitive regulation) that process these perceptual and physiological experiences, resulting in selected “external behavioural expressions and overt actions” (response selection regulation).

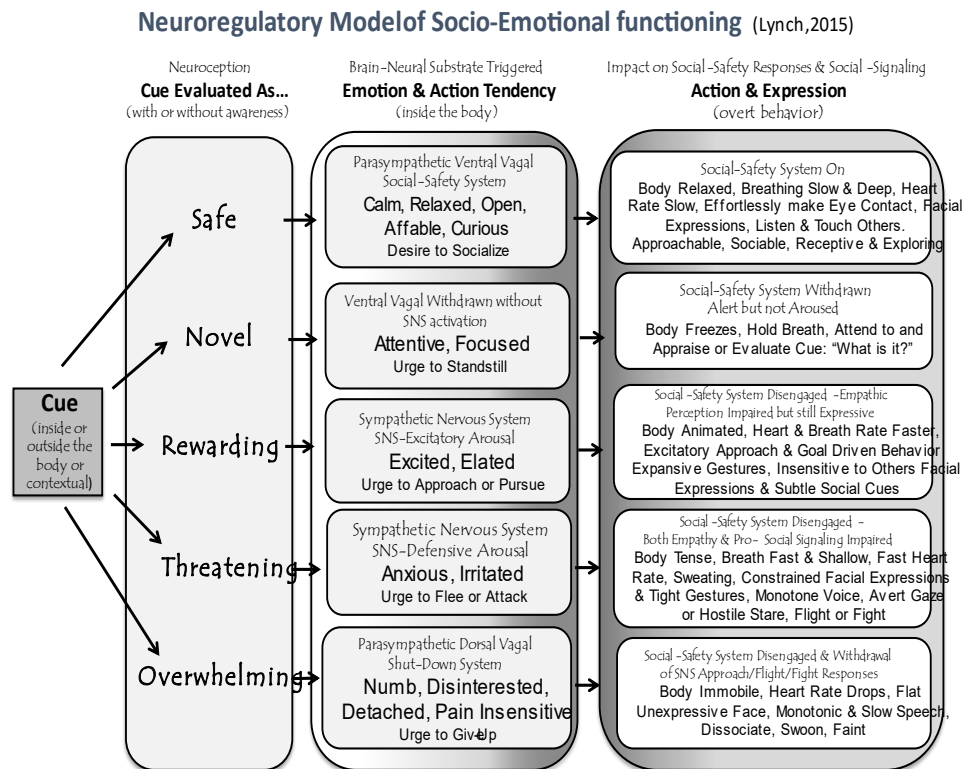


Figure 4: Neuroregulatory Model of Socio-emotional Functioning (extracted from Lynch, 2015, training slides)

Unlike in previous emotion-regulation theories used in forensic psychology, Lynch (2018a) parses emotional regulation into three transacting elements: neuroceptive tendencies, evolutionarily potentiated response tendencies, and self-control tendencies.

1. **Neuroceptive tendencies** are the degree to which incoming stimuli are perceived as safe, novel, threatening, rewarding, or overwhelming; these are influenced by an individual's basic temperament interacting with their sociobiographical history. These tendencies operate at a pre-conscious level and reflect evolutionarily potentiated autonomic nervous system responses to incoming stimuli. This was developed from the neuroanatomy work of conducted by Porges (2001).
2. **Response tendencies** are defined as the degree to which the evolutionarily disposed autonomic nervous system is activated by incoming stimuli and corresponding behaviours are potentiated by neuroceptive tendencies. It includes emotion and action tendencies that are potentiated automatically by the autonomic nervous system.

3. **Self-control tendencies** reflect higher-order cognitive processes, and these are commonly considered in models of crime (Rational Choice Theory; Cornish & Clarke, 1986) and interventions aimed at reducing reoffending by improving self-control (Friendship et al., 2003). Self-control tendencies reflect the degree to which individuals yield to versus inhibit these response tendencies; this is also influenced by both basic temperament and sociobiographical history. The choice of self-control strategies is often conscious, but Lynch (2018a) contends that inhibition can become so habitual in those with high self-control that it happens almost automatically with minimal cognitive effort.

Lynch (2015) also implicates social-signalling difficulties, which he defined as “the capacity to signal cooperativeness and establish social connectedness with others” (Chapter 2, no page number). Social signalling is both an automatic evolutionarily based response tendency and a cognitively controlled response linked to social skills. Social signalling problems are likely to be found in both undercontrolled and overcontrolled conditions, although the way in which the social signal is expressed will differ widely between the two. Overcontrolled social signalling tends to be understated, controlled, predictable, and not mood dependent, whereas undercontrolled social signalling tends to be dramatic, disinhibited, unpredictable, and mood dependent.

By separating internal regulation (e.g., tendencies to act aggressively) from external regulation (the actual act of aggression), Lynch’s model provides a means for understanding why a person can “feel” anger on the inside, yet not display any overt signs of anger on the outside. It also offers a theoretical explanation for findings examining Megargee’s original hypothesis about overcontrol and offending, which confirmed the presence of offending behaviour despite high self-control, high emotional inhibition, low impulsivity, and excessive use of rumination and cognitive rehearsal. Lynch’s (2018a) theory of overcontrol, however, fails to directly include the initiatory components of self-control, but the superior capacity to inhibit would clearly support decision-making to endure unpleasant events in pursuit of long-term goals. This may explain why, as reported by Chambers et al. (2009, 2011), some people with violent convictions reported staying in toxic relationships for years prior to acting-out violently against their partners.

2.10 Components of Lynch's Neurobiosocial Theory of Overcontrol and Offending

Whilst Lynch's neurobiosocial theory is relatively untested amongst individuals with a criminal conviction (Hamilton et al., 2018), its three components are akin to those core overarching domains implicated in the relationship between low self-control and offending (DeLisi & Vaughan, 2014). As this is, to the author's knowledge, the first time Lynch's theory of overcontrol has been applied to individuals with convictions, the three basic components of the theory will be examined within the context of current knowledge of overcontrol and offending. Hypotheses will then be generated to test Lynch's theory in a sample of high-security forensic in-patients diagnosed with personality disorders.

2.10.1 Biotemperamental Biases

Prior research into overcontrol and offending has not typically considered neurobiological functioning and temperament (Chambers, 2010), and Lynch's new theory fills an important gap. Lynch, (2018a) implicates four biotemperamental biases in threat sensitivity, reward sensitivity, self-control tendencies, and processing style that differentiate overcontrol from undercontrol (p. 319). These are summarised in Table 1 and elaborated in the following paragraphs.

Table 1: Nature, Nurture, and Phenotypic Differences between Undercontrol and Overcontrol Tendencies

Undercontrol		Overcontrol
High–low or variable sensitivity to threat.	Threat Sensitivity	High sensitivity to threat and high anxious apprehension.
High sensitivity or hypersensitivity to the presence or absence of reward.	Reward Sensitivity	Low sensitivity or insensitive to reward.
Low: disinhibited, impulsive risk taking, actions responsive to current stimuli, and high tolerance for disorganisation.	Self-control Tendencies	High: inhibited, actions responsive to consequences, risk-averse, non-impulsive, and prefer structure and order.
Global processing: a style of integrating information that is characterised by broad perspective taking or taking into account the big picture.	Processing Style	Detail-focused processing: a style of integrating sensory stimuli that is characterised by paying much more attention to the parts than to the whole.
High and variable emotional expression, emotionally labile, excitable, chaotic relationships, and prone to rash action in high emotional states	Phenotypic Expression	Emotionally static, masks inner feelings or fakes expressions, chronic dysphoria, non-excitable, distant and aloof relationships, and prone to withdrawal in high emotional states.
Intermittently reinforced for escalation of emotional responses and dramatic displays	Family/Environmental	Reinforced for appearing perfect, following rules, being correct, appearing calm or controlled

Extracted from Lynch (2015, Chapter 2, no page number)

According to Lynch, (2018a), the high threat sensitivity of overcontrolled individuals means that they are more likely to experience greater defensive arousal and fight-or-flight and freeze responses, mediated via the sympathetic nervous system and the dorsal vagal complex of the parasympathetic nervous system, respectively. Heightened temperamental threat sensitivity also means that an overcontrolled individual’s neurobiologically based social-safety system, which is mediated by the ventral vagal complex of the parasympathetic nervous system, is more difficult to activate. This undermines prosocial signalling capacity as facial expressions freeze,

and the ability to flexibly interact with others is lost (Porges, 2001; Lynch et al., 2015b). To date, neurobiologically based threat sensitivity and associated social-signalling ability have not been directly examined in forensic samples identified as overcontrolled. Proxy measures of threat, such as paranoia, hypervigilance, and suspiciousness, have been found to be elevated in some studies examining overcontrolled individuals with convictions as well as in undercontrolled individuals with antisocial and borderline personalities (Blackburn et al., 2008; Pardini et al., 2003).

The second biotemperamental bias proposed by Lynch, (2018a) is low reward sensitivity. The anticipatory reward circuitry and related approach behaviours are thought to be activated less frequently in overcontrolled than undercontrolled individuals. Evidence of low reward sensitivity has not been examined in forensic samples classified as overcontrolled. Heightened desire to seek rewards and high trait impulsivity is an accepted characteristic of undercontrolled coping, being identified in both primary and secondary psychopathy (Bijttebier et al., 2009; DeLisi et al., 2018) as well as antisocial, borderline, and histrionic personality pathologies (Beauchaine et al., 2009; Paris, 1997).

High inhibitory control is the third proposed biotemperamental bias. This implies that even when an overcontrolled person is experiencing heightened defensive arousal, they can tolerate this without impulsively acting on their response tendencies (Lynch, 2018a). Higher impulse control and superior ability to delay gratification have been consistently identified in overcontrolled compared to undercontrolled individuals with convictions (Blackburn, 1986, 1996; McGurk, 1981), even when confronted by extreme or chronic provocation (Armstrong, 1982; Chambers et al., 2009; Rosenzweig, 1978).

The final proposed biotemperamental bias in overcontrolled individuals is detail-focused processing. This is “a style of integrating sensory stimuli that is characterised by paying much more attention to the parts than to the whole” (Lynch, 2018a, p. viii). Superior attention to detail includes the ability to notice minor discrepancies, errors, and minute details, and may involve quick pattern recognition, an insistence on sameness, and preference for symmetry over asymmetry (Lynch, 2018a). This posited detail-focused processing has not yet been examined in overcontrolled individuals with convictions.

2.10.2 Socio-Developmental Experiences

The *nurture* component of Lynch's neurobiosocial theory for overcontrol involves social and developmental influences, which are thought to intermittently reinforce biotemperamental biases and support the development and maintenance of compulsive overcontrolled coping. The nurture component includes "historical (childhood trauma, past learning) or contemporary (present living conditions, new learning) influences, which are posited to transact in an iterative and bidirectional way; that is, nature influences nurture, and vice versa" (Lynch, 2018a, p. 54).

2.10.3 Sociobiographical Influences: Childhood Maltreatment

Reported prevalence and incidence rates of childhood maltreatment vary, with differences being attributed to how the construct is operationalised, its data source (e.g., official statistics, victimisation surveys, self-report), the study design (e.g., longitudinal, cross-sectional, or retrospective), and sample variability (Ertem et al., 2000; Thornberry et al., 2012). There is, however, a consensus that child maltreatment is occurring at very high rates across the world (Sethi et al., 2013).

Population estimates predict that 5–18% of children in the UK experience at least one type of maltreatment (Degli-Esposti et al., 2020), with 52,300 UK children subject to child protection plans in 2019 (Department for Education, 2019). The situation is even worse amongst UK forensic populations, with approximately 50% of child custody samples (Glover & Hibbert, 2009) and a third of adult custody samples (Degli-Esposti et al., 2020; Ministry of Justice, 2012) reporting childhood maltreatment. Samples drawn from groups with chronic mental health difficulties, such as personality disorder or enduring mental illness, report even higher rates of childhood maltreatment (Dargis et al., 2016; Ruchkin et al., 2007). For instance, Craparo et al. (2013) identified that amongst an antisocial-personality-disordered sample 77.3% had experienced at least one childhood trauma and 55.5% had experienced at least two (poly-maltreatment). Specifically, 68% experienced emotional neglect, 50% reported physical abuse, 41% emotional abuse, and 18% sexual abuse (Craparo et al., 2013). Childhood maltreatment is much more prevalent in forensic populations, especially amongst people identified as personality disordered who have also offended.

2.10.3a *Childhood Maltreatment Sequelae*

Childhood maltreatment is often used as a broad umbrella term to describe a range of adverse childhood experiences such as physical abuse, sexual abuse, physical neglect (failure to provide), supervisory neglect (lack of supervision), emotional abuse, chronic parental invalidation, educational neglect, and moral neglect (Barnett et al., 1993; English & LONGSCAN Investigators, 1997). Pre-existing biological vulnerabilities, biotemperamental factors, and the child's socio-environmental conditions growing up produce risk, and this can coalesce to impede competent adaptation and elevate the risk of negative life outcomes – including psychopathology and criminal behaviour (Masten & Cicchetti, 2010; Cicchetti & Handley, 2019; De Bellis, 2002; Lynch, 2018; McCrory et al., 2010; MacKenzie et al., 2011; Widom, 2017). Childhood maltreatment is such an environmental risk factor which is known to “usher in motion a probabilistic path of epigenesis for abused and neglected children that is marked by an increased likelihood of failure and disruption in the successful resolution of salient developmental tasks” (Cicchetti & Handley, 2019, p. 2).

Chronic and severe stress experienced by maltreated children, often occurring in the absence of protective factors, is implicated in gene expression (Zannas & Binder, 2014), biotemperamental trait shaping (Jovev et al., 2013), and the disruption of neurobiological systems, including neuroendocrine and immune functioning (Cicchetti et al., 2010; Shonkoff et al., 2009). Psychosocial disruption and behavioural problems are also more likely, with maltreated children identified as exhibiting:

- Atypical physiological regulation and difficulties in affect differentiation, recognition, and regulation (Norman et al., 2012; Pratchett & Yehuda, 2011; Sacks et al., 2017);
- Chronic avoidance (withdrawal) and/or greater risk-taking behaviour (Pratchett & Yehuda, 2011);
- Dysfunctional attachment relationships, including difficult peer relationships and chaotic relationships (Anthonysamy & Zimmer-Gembeck, 2007), social isolation (Bolger et al., 1998), and sexual promiscuity (Dube et al., 2003; Felitti, 1998);
- Anomalies in self-system processes (Kim & Cicchetti, 2006);

- Perturbations in representational development, e.g., people in authority, requests for collaboration, parenting (Feiring et al., 2000);
- Negative alterations in cognition and neurocognitive systems, e.g., depressive thinking, impaired autobiographical and working memory, and attentional control (Cowell et al., 2015; McCrory & Viding, 2015);
- Trouble adapting successfully to school and poorer school attainment (Hardner et al., 2017);
- Problematic substance misuse (Cicchetti & Handley, 2019);
- Higher risk of re-victimisation in later life (Widom et al., 2008);
- Physical health issues, e.g., increased risks of teen pregnancy (Dube et al., 2003), sexually transmitted diseases (Hillis et al., 2004), suicide attempts (Felitti, 1998), and other health conditions (Archer et al., 2017; Norman et al., 2012; Sacks, et al., 2017);
- Lower peer status and peer acceptance (Salzinger et al., 1993; Feiring et al., 2000);
- Socioeconomic instability (Pinto Pereira et al., 2017).

Specific developmental pathways have been posited linking historical sociobiographical experiences, offending, and the two overarching spectra of internalising and externalising dimensions (Achenbach, 1966; Crijnen et al., 1997). Similarly, the personality prototypes of overcontrol and undercontrol have been implicated in the developmental pathway linking childhood maltreatment and developmental experiences with later psychopathology and engagement in crime (Blackburn et al., 2008; Caspi, 2000; Moffitt et al., 2011).

2.10.4 Externalising Pathway: Sociobiographical Experiences, Undercontrol, and Offending

Externalising pathways to criminal behaviour have been robustly supported, often being referred to as the behavioural undercontrol–disinhibition pathway, antisocial pathway, or deviance-proneness pathway (Chassin et al., 2016; Handley et al., 2017; Mezquita et al., 2014; Oshri et al., 2011). The developmental sequence of the behaviourally undercontrolled (externalising) pathway links childhood maltreatment, psychopathology, familial context, and criminal behaviour (Cicchetti & Handley, 2019). Within the undercontrolled (externalising) pathway, parental undercontrol, parental invalidation, and family context are posited to interact

with the child's undercontrolled temperament, behaviour, and peer affiliations, producing risks associated with the emergence of psychopathology and criminal behaviour (Cicchetti & Handley, 2019; Chassin et al., 2013; Linehan, 2015; Zucker et al., 2007).

Familial factors such as parental undercontrol or disinhibition are posited to produce greater risks of children experiencing parental abandonment, suicidality, criminality and chaotic parental relationships. Parental alcohol and drug misuse or dependency, externalising mental health issues, parental conflict, and domestic violence is also more likely (Cicchetti & Handley, 2019; Loeber & Burke, 2011). These familial risks are also robust predictors of childhood maltreatment, poor socialisation, and offspring criminality (Cyr et al., 2010). Behavioural disinhibition, aggression, poor self-control, and rule-breaking behaviours are common temperamental and behavioural hallmarks of children identified as undercontrolled (Asendorpf & Aken, 1999). Childhood maltreatment, parental absences, and parental antipathy may mean emerging patterns of misconduct and rule-breaking amongst undercontrolled children are not curtailed (supervisory neglect) or familial/parental messaging may reward and encourage undercontrolled coping and antisocial behaviour (moral neglect). The peer context is thought to be particularly salient for undercontrolled children's ensuing problems with antisocial behaviour in adolescence and through to adulthood (Capsi et al., 2000; Cicchetti & Handley, 2019; Widom, 2017). Adolescence for children on the undercontrolled pathway to offending are often characterised as spending increased time with antisocial peers and decreased time with parents and family or in school (Spear, 2000).

2.10.5 Internalising Pathway: Sociobiographical Experiences, Overcontrol, and Offending

Developmental cascades on an overcontrolled (internalising) pathway to later psychopathology and offending are posited to differ from the historical socio-developmental experiences thought to reinforce individuals on an undercontrolled pathway (Megargee, 1966; Lynch, 2018). To date the developmental sequence for the behaviourally overcontrolled (internalising) pathway is still under-researched, and emerging findings are mixed and focus predominantly on the association between adverse childhood experiences and internalising psychopathology, personality difficulties, and poor psychosocial adjustment (Liu et al., 2011; White et al., 2015).

2.10.5a Childhood Maltreatment and Offending

Whilst the links between childhood maltreatment, undercontrol, and offending have been robustly examined, this not the case for the overcontrolled pathway. Five studies have directly reported on the childhood maltreatment experiences of overcontrolled individuals with convictions (Blackburn et al., 2008; Chambers et al., 2011; Hershorn & Rosenbaum, 1991; Jensen, 2003; Worling, 2001). Cross-referencing across studies was impossible due to definitional, sampling, and method variability (Blackburn et al., 2008; Chambers et al., 2011; Hershorn & Rosenbaum, 1991; Jensen, 2003; Worling, 2001). Consequently, at this time it is difficult to predict how the pattern and severity of childhood maltreatment may differ between over- and undercontrolled individuals with convictions, except to say that both groups are likely to have experienced high levels of childhood abuse, particularly polymaltreatment.

2.10.5b Familial Context and Socialisation Experiences

Forensic research has consistently revealed that overcontrolled individuals with convictions tend to be highly and possibly over- socialised and conforming (Blackburn, 1986; Frederiksen, 1975; White et al., 1973; Truscott, 1990). Morally, overcontrolled individuals with convictions tend to be more attentive to rules and moral standards (Haven, 1972; Thebus, 2012), be morally rigid (Lane & Spruill, 1980), and are keen to portray themselves as morally above reproach (Smith et al., 1987). Overcontrolled individuals with convictions are also more likely to express conservative views about moral and legal transgressions (Megargee, 1966; Low & Day, 2015), and are less likely to endorse crime-supportive thinking in adulthood (Low & Day, 2015). Legally, overcontrolled individuals have been found to score lower on child maladjustment and deviance scales, and they are generally more prosocial in childhood than their undercontrolled counterparts (DeLisi et al., 2010; Megargee & Carbonell, 1993). They also exhibit significantly fewer childhood and adolescent behavioural problems, along with less aggression and criminal behaviour (DeLisi et al., 2010; Jensen, 2003).

Unlike the pattern of familial risk on the undercontrolled pathway, the parents of overcontrolled individuals with convictions have been found to be more available, prosocial, and affluent. They are typically better educated, tend to promote educational attainment, and are more often engaged in gainful employment (Chambers et al., 2009, 2011; Low & Day, 2015). Rawlings

(1973) found that mothers of “extreme assaulters” (a proxy overcontrolled sample) were more present at home, while their fathers had more skilled employment compared to the “non-extreme assaulters” (a proxy undercontrolled group). Megargee and Carbonell (1993) similarly reported that adult males who committed a single-episode violent offence (a proxy overcontrolled group), when compared to those who committed repeated violent offences (a proxy undercontrolled group), experienced less parent-child tension growing up, more parental nurturance, appropriate parental discipline, greater familial cohesion, and had fathers who had a positive and constructive influence on their lives. Parents of overcontrolled individuals were also less likely to be engaged in criminal activities or to promote violence as a solution to interpersonal problems (Megargee & Carbonell, 1993; Chambers et al., 2009, 2011). Hershorn and Rosenbaum (1991) did not confirm these findings in a small sample of men convicted of intimate partner violence, identifying more maternal rejection and harsher discipline amongst those who scored higher on the overcontrolled hostility scale (proxy overcontrolled group). A mixed of inherent sampling variability due to small sample sizes in these studies, differences in measurement and sampling error may explain these contradictory findings, as well as divergence in how the comparison samples were assigned.

Like their parents, overcontrolled individuals with convictions tend to have demonstrated positive social adjustment growing up. School attendance, grade attainment, school behaviour, and relationships with teachers and peers in childhood and adolescence were found to be consistently better for overcontrolled than for undercontrolled individuals with convictions (Chambers et al., 2009; Haven, 1972; Megargee, 1966; Megargee & Carbonell, 1993; McGurk, 1981; Widom, 1978). Attitudinally, overcontrolled individuals are also more oriented towards doing well in school and more thorough in their approach to academic tasks (Megargee, 1966; Haven, 1972; Megargee & Carbonell, 1993). As adults, work adjustment was better amongst overcontrolled individuals with convictions, and they were found to demonstrate a good work ethic both in and out of prison (Megargee, 1966; DeLisi et al., 2010; Haven, 1972; Low & Day, 2015; Megargee & Carbonell, 1993). Overcontrolled individuals who had committed offences were also more likely than undercontrolled individuals to have had higher-paid jobs (Frederiksen, 1975), obtained higher occupational status (Haven, 1972; Quinsey et al., 1983), and needed less vocational/employment skills training in prison (McGurk, 1981).

The author has previously written that overcontrolled individuals with convictions have a “penchant for organising, hard work and planning [that] makes these individuals great employees, and reports by workshop instructors and prison officers are often exemplary, referring to them as *model prisoners*” (Hamilton, 2017b). Unlike undercontrolled individuals with convictions, those children identified as overcontrolled appear to be more prosocial and adjusted growing up, and in adulthood, employment does not appear to be an obvious risk factor associated with their choices to offend. In fact, Lynch’s (2018a) theory would suggest that persistent teacher, manager, and parental praise for “being well-behaved”, “being the best”, and “social conformity” may inadvertently strengthen biotemperamental tendencies and increase overcontrolled coping. If these socio-environmental contingencies persist throughout the lifespan, and normal displays of emotion and failures in self-control are punished, then habitual patterns of compulsive striving, emotional inhibition, conflict avoidance, conforming to rules, and internalising problems may start to form and strengthen (Lynch, 2018a). Early gains in social adjustment noted for an overcontrolled child while growing up may not be carried forth into adulthood, as habitual overcontrol is associated with a broad range of relational difficulties (Lynch et al., 2007), socio-emotional injuries (Gladstone et al., 2006), chronic psychopathology (Lynch & Cheavens, 2008; Lynch et al., 2020), and offending behaviour (Megargee, 1966; Low & Day, 2015).

2.10.5c Parental Invalidation, Overcontrol, and Offending

Whilst it is widely accepted that childhood maltreatment may bring environmental and familial risks associated with negative life outcomes, less obvious parenting factors and practices may also contribute to the progression of overcontrolled (internalising) pathways to psychopathology (Lynch, 2018a) and offending (Megargee, 1966; Megargee & Carbonell, 1993). According to Lynch, (2018a), parenting practices that support the emergence and strengthening of habitual overcontrol include parental invalidation (including overprotection), parental misattunement, and parental modelling of overcontrolled coping. Direct and indirect parental messaging that persistently places a high value on self-control, social conformity, achievement, and correctness over social connectedness will also strengthen overcontrol tendencies (Lynch, 2018a). Examples of detrimental parental messages might be, “self-control is imperative, mistakes are intolerable, always be prepared, winning is essential, and never

reveal weakness” (Lynch, 2018a, p. 47). This transaction between an overcontrolled temperamental predisposition and invalidating parenting practices like those described above are thought by Lynch, (2018a) to create socio-environmental conditions for the developing child that can result in emotional inhibition, an overly cautious approach, relational aloofness, rigid and rule-governed behaviour, and use of social comparisons to self-regulate.

2.10.5d Parental Overprotection

Parental overprotection refers to “the limits that parents set for their child and the degree to which parents [excessively] intrude in activities that the child is capable of undertaking independently” (Spada et al., 2012, p. 288). Whilst parental overprotection likely reduces the probability of some types of childhood maltreatment occurring, it creates socio-environmental contingencies that inhibit healthy child development and reinforce overcontrol tendencies. “Overprotection prevents habituation or extinction from taking place by reducing opportunities for the child to experience normal anxiety-provoking situations” (Lynch, 2018a, p. 60). Lynch goes onto to suggest that “well-intentioned parents may overtly intend to communicate that ‘life isn’t scary’, yet inadvertently may communicate the opposite (e.g., ‘it is important to protect yourself’)” (p. 60).

Overprotective parenting likely enhances threat sensitivity and behavioural inhibition sensitivity (BIS) in children by inadvertently teaching or modelling that the world is a dangerous place that should be feared (Kimbrel et al., 2007). Overprotective parenting also likely impairs the child’s sense of autonomy and increases co-dependency on more dominant others for well-being and direction in life (Spada et al., 2012). Parental overprotection transacts with biotemperamental tendencies, strengthening overcontrolled habits that, over time, create social and psychological problems for the overcontrolled person, and these in turn produce risks that compound the problem of habitual overcontrolled coping. Unsurprisingly, highly inhibited children with overprotective parents are more prone to internalising problems such as anxiety, social phobia, and obsessive–compulsive disorders across the lifespan (Norton & Abbott, 2017). These shy, restricted, and overly protected children are also more vulnerable to other socio-emotional injuries, such as bullying, lower peer status, and social isolation (Gladstone et al., 2006).

2.10.5e Parental Misattunement & Modelling Overcontrolled Coping

Parental invalidation, which is posited to strengthen overcontrolled biotemperamental tendencies, is thought by Lynch, (2018a) to include parental misattunement to age-appropriate requests for nurturance, parental modelling of habitual emotion inhibition, and parental distress following “normal” emotional displays or mistakes by a child. Problematic parenting practices also include implicit or explicit rewards for stoic behaviour, emphasis on suppression of vulnerability, and encouragement for masking or disingenuous expressions of emotion (Lynch, 2018; Creasey et al., 1995). Conversely, parenting practices that punish requests for nurturance, playful spontaneity, and normal displays of emotion will also reinforce overcontrolled coping (Lynch, 2018a; Creasey et al., 1995). For instance, young children are particularly vulnerable to their parents’ emotional or non-emotional displays, and they are prone to engage in avoidant coping efforts in response to negative parental affect and approach behaviours in response to positive affect (Lynch, 2018a; Creasey et al., 1995). Parental distress following emotional displays “could signal to a child that they are causing their parent pain ... An expedient way to repair or soothe a distressed parent could be to inhibit negative emotional displays and/or suppress thoughts believed to be dysregulating to the parent” (Lynch, 2014, Chapter 2). These adverse socio-environmental contingencies, communicated via parental attention and messaging, reinforce emotional inhibition and coping-alone behaviours and encourage masking of inner thoughts and feelings to avoid parental rejection, criticism, or negative affect.

Implicit or explicit parental messaging may also encourage the child to keep familial secrets associated with parental and familial losses of self-control, such as witnessing parental domestic violence, infidelity, explosive outbursts, or substance misuse. These familial secrets would be a big burden for a child to carry, and the insular nature thought to be promoted by overcontrolled parenting would reduce access to external social support, as well as increasing the potency of parental messaging and practices (Taylor et al., 2015). Societal messaging that emphasises staying in control and better rewards for delayed gratification will also strengthen parental views being internalised by the child. For instance, high self-control is associated with greater social status, monetary rewards, positive attention, and social acceptance in Western societies (Tangney et al., 2004). Similarly, Western societies promote messaging linked to

social exclusion or “tribal” rejection after losses in self-control, such as going to prison, and this will further cement the idea that maintaining self-control is imperative.

2.10.5f Excessive Parental Expectations

Excessive parental expectations and parental messaging that places a premium on high performance, achievement, and precision over emotional nurturance and intimacy are linked to the development of maladaptive overcontrol in Lynch’s (2018a) theory. Parental messaging that conveys the need for high performance (perfectionism) and being the best is posited to heighten threat sensitivity and diminish the importance of emotional nurturance in relationships. For instance, longitudinal research using a community-based sample found that mothers’ reports of childhood emotional distance (e.g., “I do not praise my child”) were associated with an increased risk of internalising symptoms (avoidant and paranoid symptoms) amongst their children, even after controlling for physical or sexual trauma, physical neglect, and other personality disorder symptoms (Johnson et al., 2000). Parental messaging that conveys the need for high performance alongside regular critical feedback on performances will increase the probability of an overcontrolled child feeling “not good enough” and socially sensitive (Assor & Tal, 2012; Lynch, 2018a). For a child already biotemperamentally sensitive to threat, these excessive expectations and parenting practices will heighten anxiety, especially around other people who are seen as competitors or critics.

Parental modelling of social comparisons will initially support the child’s capacity to self-regulate, especially in childhood, as these children are often seen as out-performing others (Asendorpf et al., 2008). Use of social comparisons, “primarily in order to confirm that one’s performance is at least adequate (and hopefully better) than similar others” (Lynch, 2018, p. 55), can become problematic when part of compulsive overcontrolled coping. Conditional parental acceptance linked to achievement, along with excessive use of social comparisons to self-regulate, creates conditions in which the overcontrolled child’s behaviour becomes highly influenced by external factors rather than being driven by internal desires, wants, and beliefs. Avoiding negative evaluation from others or negative self-evaluation therefore becomes highly influential in maintaining a view of self as worthy and “good enough”.

Over time, avoidance of negative evaluation can become critical for the child's well-being, with underlying trait structure likely influencing how the overcontrolled individual manages these excessive social expectations and accompanying anxiety (Turkat, 1985). According to Lynch (2018a), common responses that support the development of maladaptive overcontrol include rigid and rule-governed behaviour to manage other's expectations, relational aloofness, risk aversion, habitual agreeing to avoid conflict, compulsive inhibition of private desires and wants, compulsive approach coping ("fixing" others), or perfectionistic tendencies. These parenting practices may also encourage the overcontrolled child to silently endure to keep attachments, and as this emerging rule for living solidifies over time, the risk of emotional neglect in close intimate relationships may increase. This process may explain the tendency found amongst some overcontrolled individuals with conviction to stay in "toxic relationships", sometimes for years (Chambers et al., 2009). Alternatively, parenting practices may encourage a "win at all costs" attitude or a sense of moral superiority, which may explain the high levels of moral certitude or self-presentation as morally above reproach found amongst some overcontrolled individuals with convictions (Chambers et al., 2009, 2011).

Parenting practices that reinforce overcontrolled ways of coping and support habitual use of these overly restricted ways of being are associated with greater risk of negative peer evaluation and rejection. For instance, developmental researchers suggest this inhibition can be so over-learned that masking or disingenuous expressions may emerge even in non-emotional contexts, resulting in these already constricted children looking even more awkward or "different" relative to their less-anxious peers (Turkat, 1985; Eisenberg et al., 2000). If these overcontrolled tendencies persist through childhood and into adolescence, they can interfere "with the development of adaptive relationships through avoidance of social situations, frozen expressions in the presence of other's affect, guarded responses, lack of spontaneity, and exaggerated prosocial or appropriate behaviour" (Lynch, 2015, Chapter 2). A vicious cycle may occur, whereby once-successful self-control strategies developed in childhood become so habitual in adolescence and adulthood that they create the conditions they were meant to avoid.

The overcontrolled person's internal and external world likely shrinks over time due to managing a fear of negative evaluation and criticism; however, their overly rigid and cautious way of being elicits social rejection and lowers peer status. In adulthood, social isolation and

emotional loneliness are common amongst overcontrolled individuals (Rubin et al., 1998), and having a lack of friends might also render the overcontrolled person psychologically and socially vulnerable to other socio-emotional injuries, such as bullying, emotional abuse, and (re-)victimisation (Asendorpf et al., 2008; Biggs et al., 2010; Chambers et al., 2009; Chapman & Goldberg, 2011).

The developmental cascades of the overcontrolled (internalising) pathway suggest a bidirectional relationship between socio-developmental influences, such as familial risks, societal messaging, parental invalidation, and socio-environmental contingencies, and the overcontrolled child's biotemperamental systems. Overcontrolled biotemperamental biases towards heightened threat, diminished reward, excessive inhibition, and detail-focused processing, are posited to be intermittently reinforced by societal, parenting and peer experiences growing up. As compulsive and habitual use of overcontrolled coping emerges and solidifies, and this perpetuates its development by creating contemporary socio-environmental contingencies and internal states that strengthen overcontrolled biotemperamental biases. Nature impacts nurture and, vice versa, nurture impacts nature, and this bidirectional relationship coalesces in compulsive overcontrolled coping.

2.11 Compulsive Self-Control

According to Lynch's neurobiosocial theory, the end result of transactions between the nature and nurture components is the development of an overcontrolled maladaptive coping style. Specifically, biotemperamental deficits/excesses (nature) combine with damaging family and environmental influences (nurture) to promote learning that severely impedes openness, flexible responding, cooperative social-signalling, and context-appropriate socio-emotional behaviour. "Despite its negative social consequences, this overcontrolled coping style becomes increasingly rigid over time as a function of intermittent reinforcement" (Lynch, 2018a, p. 60). Lynch, (2018a) proposes five habitual coping themes that reflect maladaptive overcontrol in clinical populations. These are outlined in the next subsections, and their generalisability to a forensic context will be examined.

2.11.1 Inhibited or Disingenuous Emotional Expression

This coping response includes “saying I’m fine when not; exhibiting blank facial expressions; smiling when angry; low use of emotional words; low use of big gestures and cooperative signals, such as eyebrow wags, hand gestures when speaking, head nods, eye contact” (Lynch, 2018a, p. 249). Distress overtolerance is also central to this maladaptive overcontrolled coping theme, being defined as “rigid or compulsive engagement in energy-depleting or distressing activities despite evidence suggesting that the desired goal may be unobtainable or that continued persistence may be damaging” (Lynch, 2018a, p. 65).

Emotional expression and open displays of vulnerability play a critical part in human relationships (Kelner & Kring, 1998), with habitual emotional inhibition found to disrupt communication and negatively impact relationships (Gross & John, 2003; Butler et al., 2003). For instance, research examining emotional reciprocity in interpersonal interactions has consistently found that people who rarely or inappropriately reciprocate social cues are experienced by social partners as less authentic (Boone & Buck, 2003; Kernis & Goldman, 2006) and less likeable (Cappella, 1985), their communication was experienced as less rewarding (Joiner, Metalsky, & Wonderlich, 1995), and social partners were less likely to disclose personal information (Furr & Funder, 1998). Habitual masking inner of feelings makes it difficult for overcontrolled individuals to form close social bonds with others and increases the likelihood of social ostracism/isolation, private psychological distress (Mauss et al., 2011), and psychopathology (Lynch et al., 2004).

Forensic research has confirmed that overcontrolled individuals with convictions often obtain higher test scores than undercontrolled individuals on measures of denial, repression, minimisation of distress, emotional inhibition, and impulse control (Blackburn, 1986; Worling, 2001). When compared to undercontrolled individuals, lower anger experience and expression (Henderson, 1982; Low & Day, 2015) and better anger control are common amongst overcontrolled individuals with convictions (D’Silva & Duggan, 2010; Low & Day, 2015). Conflict avoidance, deficits in assertiveness, and low expressed hostility have also been found to be common amongst overcontrolled individuals with convictions (Blackburn, 1975; Henderson, 1982; Lane & Kling, 1979; Megargee et al., 1967). Individuals identified as overcontrolled may also be excessively tolerant, being over-accommodating and engaging in

self-sacrificing behaviours within relationships to fit in and maintain social bonds. As noted previously, Chambers (2009) found that some overcontrolled individuals with convictions reported staying, sometimes for years, in personally abusive and toxic relationships, and Rosenzweig (1978) reported similar findings. Lynch, (2018a) suggested that distress overtolerance is reinforced not by an avoidance of negative affect, such as a fear of being rejected, but rather it is mediated by positive affectivity related to achievement or pride at being able to endure more than others.

2.11.2 Extreme Caution and Excessive Focus on Details

Lynch et al. (2015a) noted that heightened “temperamental threat sensitivity, diminished reward sensitivity, and high detail-focused processing function to influence *perception*; making it more likely that novel or discrepant stimuli will not only be detected but evaluated at the sensory-receptor level as dangerous” (p. 145). Broadly speaking, overcontrolled individuals are biologically hard-wired to perceive new or unfamiliar situations as threatening rather than rewarding. This hypervigilant and overly cautious way of being, which is underpinned by biotemperamental biases, is associated with problems signalling cooperativeness, low openness, and heightened sensitivity to others (Porges, 2001). To keep safe and reduce this sense of private threat in social situations, the overcontrolled individual is posited by Lynch, (2018a) to engage in compulsive planning and cognitive rehearsal about what to say or do, compulsive checking, and high detail-focused processing. This hypervigilant or highly detailed way of being is thought by Lynch, (2018a) to create a vicious feedback loop that preserves negative interpersonal exchanges and maintains emotional loneliness. For instance, superior attention to minor discrepancies, along with an almost compulsive need to point out errors or correct mistakes, can alienate the overcontrolled individual from others (Lynch, 2018).

As stated previously, the relationship between threat sensitivity and over- and undercontrol is complicated by the high levels of childhood trauma reported amongst individuals with convictions (Ardino, 2012; Blackburn et al., 2008). Elevated hypervigilance, behavioural avoidance, and cautiousness may be expected in both over- and undercontrolled groups. High levels of antecedent-focused coping, which refers to proactive actions performed to prevent activation of neuroceptive or response tendencies, have consistently been confirmed in overcontrolled individuals with convictions. Excessive cognitive rehearsal and compulsive

planning, along with prolonged rumination preceding and following action, have been confirmed amongst overcontrolled individuals with convictions (Chambers et al., 2009, 2011).

2.11.3 Aloof and Distant Relationships

This theme refers to restricted coping that maintains emotional loneliness. It includes difficulties such as problems signalling cooperativeness, low openness, heightened sensitivity to others, and abandoning a relationship rather than dealing directly with a conflict. Lynch (2018a) proposed that individuals with maladaptive overcontrol often feel disconnected and adrift from others – they have no tribe, no one in their life who “gives a damn”. Over time, they may become increasingly resentful of those reporting to care and want to prove to others that this love and care is inauthentic (Lynch, 2018a). Expressing these bitter and cynical sentiments about others likely pushes people away, making them a perpetual outsider or driving them towards like-minded others who will validate their pessimistic and sceptical worldviews. Emotional loneliness and social detachment are likely consequences, and perhaps the probability of (re)offending increases for some people once they are alienated from others (Bumby & Hansen, 1997).

Chambers’ (2010) theoretical review also conceived low sociability as a central issue for overcontrolled individuals with convictions, and Worling (2001) found overcontrolled adolescent boys with sexual convictions often had difficulty developing and maintaining healthy relationships. Overcontrolled compared to undercontrolled individuals with convictions, have been found to identify themselves as more reserved, socially responsible, conforming, unemotional, socially withdrawn, and controlled (Blackburn et al., 2008; Low & Day, 2015). Overcontrolled individuals with convictions also tend to be described as loners (Megargee, 1966), but Lynch’s model supposed that this is not because these individuals do not want social connectedness, rather their biotemperamental and over-learned overcontrolled responses keep them distant from others.

2.11.4 Rigid and Rule-Governed Behaviour

This theme is associated with social-signalling deficits, in particular deficits in authentically signalling cooperativeness and low flexible control. This is manifested in compulsive needs for

order & structure, strong desires to be correct, hyper-perfectionism, compulsive rehearsal, premeditation and planning, compulsive fixing and approach coping, high social obligation and dutifulness, and high moral certitude (Lynch, 2018a). Current forensic research provides some very tentative support for this restricted coping style, with overcontrolled individuals with convictions exhibiting rigid inhibition of emotions (Megargee, 1966), an inability to break ruminative cycles once started (Chambers et al., 2009), cognitive rigidity (Howells, 1983), and interpersonal rigidity (Worling, 2001). This rigid and rule-governed behaviour is also reflected in fixed ideas about how people should behave, with overcontrolled individuals with convictions more likely to be attentive to rules and moral standards and hold conservative views about moral and legal transgressions (Lane & Spruill, 1980; Megargee, 1966; Thebus, 2012).

High levels of mistrust (Blackburn, 1971) and assertiveness deficits (Herzberg & Hoyer, 2009) mean that overcontrolled individuals' strict and rigid rules of relational engagement are likely to be kept hidden. Consequently, other people may often unknowingly infringe these rigid interpersonal expectations, with biotemperamental and perceptual biases increasing the likelihood that any infringements will be appraised as intentional and potentially harmful. This would reinforce the idea of a dangerous world that needs to be avoided and/or strictly managed. High inhibitory control means that evidence of emotional activation could easily be prevented or internally neutralised, and therefore no outward social signal of this perceived infringement would be immediately evident to others. It may nevertheless trigger unanticipated withdrawal, long periods of rumination, and unexpected explosive outbursts later.

2.11.5 High Social Comparisons, Envy and Bitterness

Lynch (2018a) suggests that overcontrolled individuals are likely to experience high levels of envy and bitterness fuelled by social comparison, particularly when someone compares themselves unfavourably to others. Unhelpful envy emerges when an individual believes another's advantage over them is unwarranted, and this can create urges to prevent another person from achieving their goals (Lynch, 2018). Unhelpful envy is associated with increased *Schadenfreude* (van Dijk et al., 2006; Verona & Carbonell, 2000) and can lead to covert and overt expressions of hostility (Duffy et al., 2012), vengeful behaviours (Krizan & Johar, 2012), or a fatalistic stance of everything being hopeless (Lynch, 2018a).

The presence of unhelpful envy in forensic populations has not been well researched, but correlates are evident, such as high levels of resentment and bitterness (Megargee, 1966), use of social comparison (Howells, 1983), and a deep sense of being unfairly treated (Chambers et al., 2009, 2011; Smith et al., 1987). Both anger and depressive rumination have also been found to be prevalent, with descriptive accounts of offence cycles suggesting that some overcontrolled individuals ruminated for up to a year after a perceived traumatic or provocative event (Chambers et al., 2009, 2011). For some individuals identified as overcontrolled, rumination about anger-evoking memories, along with re-appraisal of others' inappropriate actions as being their fault, helped internalise anger and enhanced depressive bitter moods (Chambers et al., 2009, 2011). For other overcontrolled individuals, vengeful rumination was a core cognitive strategy (Chambers et al., 2009, 2011) that regulated a deep sense of injustice when others breached their strictly adhered-to personal morals, rules, or principles. Lynch (2018a) posits that overcontrolled individuals dare not express these sentiments aloud, since they recognise that their bitter and cynical sentiments about the world and people in general will not be widely accepted and they will risk social rejection.

2.12 Conclusion

Despite mounting evidence of an association between maladaptive overcontrol and serious offending (Blackburn et al., 2008; Low & Day, 2015; Redondo et al., 2019; Worling, 2001), overcontrol and criminal acts associated with moral certitude, excessive inhibitory control, forward planning, and desires for revenge remain poorly understood and under-studied. In contrast, there has been an enormous amount of theory, research, and clinical interventions developed for undercontrolled individuals with convictions (Day et al., 2008; Gottfredson & Hirschi, 1990; Pratt & Cullen, 2000). Ethical, practical, and economic costs of not adapting forensic practices for overcontrolled individuals are probable, yet firm conclusions are elusive, as overcontrol amongst individuals with convictions is rarely studied and poorly conceptualised.

An absence of a synthesis of existing research is a major shortcoming in our current understanding of overcontrol in forensic populations, and this is a critical first step in advancing our understanding of overcontrolled individuals who offend, as well as helping theory

development, identifying promising areas for further research, informing forensic practice, and guiding future directions in study design and research. After discussing the methodology underpinning this thesis (Chapter 3), the next step comprises a systematic review of forensic research (Chapter 4). The review aims to identify the prevalence of overcontrol amongst forensic populations, discern any patterns of criminal behaviour, and synthesise the extant literature in terms of the three overarching domains of the recent overcontrol theory proposed in Lynch (2018a), that is, biotemperamental, socio-developmental, and coping characteristics. Findings from the systematic review will be used to guide theory testing in subsequent empirical chapters. First a re-examination of Megargee's ideas in Chapter 5, and some initial proof of concept testing linked to the nature and coping (Chapter 6) and nurture (Chapter 7) domains of Lynch's novel neurobiosocial theory of overcontrol.

Chapter 3: Methodology

3.1 Overview

This chapter outlines the methodological approach employed within this thesis. It starts by providing an overview of the philosophical stance and some of the ethical challenges and considerations faced whilst designing and conducting this research. The four studies will be discussed individually, firstly the systematic review and then the three empirical studies. The rationale for the overall methodology, measurements used, sampling, data extraction, and methods of analysis will be discussed. The specific methodology relevant to each study will be detailed within the relevant chapters.

3.2 Philosophical Stance

Pragmatism provides an organising philosophical framework for the research in this thesis and it also underpins the author's applied practice model, scholar-practitioner (Bell & Hausman, 2014). A pragmatic worldview helps bring together scientific and humanistic domains of understanding and embraces plurality, believing there is no single universal answer to a problem or one dominant system of philosophy and reality. Instead, it is about doing what works (Onwuegbuzie & Leech, 2005; Kaushik & Walsh, 2019). Research based on a pragmatic paradigm aims to generate practical knowledge and solutions through an action-oriented process of inquiry based on democratic values and commitment to progress (Kaushik & Walsh, 2019). Applied practice underpinned by a pragmatic paradigm is similarly engaged in an ongoing process of disciplined inquiry and self-reflection for the purposes of continuously improving clinical practice and organisational effectiveness, as well as developing and improving theory and science (Smith & Wilkins, 2018)

Fundamental to the endeavours of the pragmatic researcher-clinician is the process of abductive reasoning, which is used to find practical, evidence-based solutions to active clinical situations and problems (Kaushik & Walsh, 2019). The overarching clinical problem relevant to this thesis is how we might rehabilitate individuals who have not responded to standard offending behaviour treatment. More specifically, it addresses the question of how we might rehabilitate individuals who have too much self-control and do not respond to standard offence-

related treatments predicated on undercontrolled coping. These questions run counter to the accepted wisdom – that you can never have too much self-control and that high self-control protects against engagement in criminal behaviour and other aberrant behaviours (Hirschi & Gottfredson, 1993). The stimulus for the current thesis evolved over nearly 20 years of abductive reasoning, a back and forth between clinical observations, literature searches, clinical conversations, and evaluations of real-life attempts at treating individuals who exhibited too much (overcontrol) as opposed to too little self-control (undercontrol). This thesis represents a commitment to progressing our understanding of overcontrol in forensic populations through a process of ethically sensitive pragmatic enquiry.

The pragmatic researcher–clinician takes the view that research always occurs in social, historical, political, and other contexts, and that we are never free from bias nor completely separated from our contextual worlds (Kivunja & Kuyini, 2017; Long et al., 2018). Morgan (2014) posits that whilst each person’s knowledge is unique and created by their unique experiences, concomitantly, much of this knowledge is socially shared and created from socially shared experiences. The pragmatic researcher–clinician embraces this intermixing of worlds, using theoretical, individual, and social knowledge to inform their research work and clinical practice. The researcher using a pragmatic paradigm accepts that they are never able to totally extract themselves from the research object, challenging the positivist ideals of neutrality between researcher and research object. This positioning of the researcher is particularly pertinent to the current thesis, as the author is both a clinician and researcher in the same situation. Ethical considerations of the overlapping professional roles are outlined below, but from a pragmatic standpoint, this boundary-spanning position can be accommodated. Indeed, it is expected that pragmatic scholars and practitioners work at the interface between traditional scholarship and applied practice, with the scholar–practitioner transferring, translating, consuming, and producing scholarly knowledge to help address everyday practice-based situations (Bell & Hausman, 2014; Smith & Wilkins, 2018).

Ultimately, the pragmatic researcher has flexibility in how they position themselves; they can take steps to minimise internal and external influences, but equally they may choose to maximise embeddedness in the studied phenomena. This acceptance of plurality in roles and researcher positioning helps accommodate the complex role of the author and offers hope that,

if managed correctly, the insider perspective could be advantageous rather than damaging. For instance, knowing the host institution could give the author a practical and ethical advantage, as they are intimately connected to the clinical work being done and acutely aware of service users' vulnerabilities and risks. This insider knowledge also gives the researcher a priori awareness of "large P" and "small p" politics, organisational dynamics, and community sentiments and values that may impede the research and its application. Modelling the role of "insider" reaching out and making the work inside these hard-to-access forensic institutions transparent challenges both internal staff and external public perceptions of "special hospitals" as closed institutions (Stowell-Smith, 2006).

Acceptance of a non-singular reality means that pragmatic-based researcher–practitioners can embrace plurality. Practically, the researcher has freedom to choose from different theories, worldview(s), assumptions, methods, designs, techniques, and procedures of research to meet the particular purpose of a given situation (Kaushik & Walsh, 2019). There is no need to subscribe to one research paradigm and its associated methods, rather the pragmatic researcher–clinician's framework for enquiry is inclusive and flexible, permitting opportunity to choose the methods and tools that may fit the research question or clinical anomaly (Creswell & Plano Clark, 2011; Kaushik & Walsh, 2019; Plath, 2013). The methods used by pragmatic researchers may be quantitative, qualitative, or mixed, and the strategy of enquiry may include intermixing data collection tools, such as interviewing, observation, document analysis, psychological testing, experiments, and so on. From a pragmatic perspective, alternative approaches are considered complementary rather than oppositional (Onwuegbuzie & Leech, 2005). The clinical question of how we might treat individuals who do not fit the dominant criminological thesis predicated on undercontrolled coping lends itself to this pragmatic approach. The flexibility offered by a pragmatic approach can help the researcher–clinician respond to the practical and ethical constraints placed on the research by the nature of the innovative research question, hosting institution, and/or service users' unique characteristics.

3.3 Ethical Considerations

All the empirical studies within this thesis sought and received ethical clearance both from the Nottingham Trent University Business, Law, and Social Sciences College Research Ethics

Committee, and from the Nottinghamshire Healthcare NHS Foundation Trust Research and Development Committee. The process of seeking ethical approval enabled the researcher to consider and reflect on the research process, study design, and any potential ethical challenges that may arise.

All the author's clinical and research endeavours are guided by the Health & Care Professions Council (2016) Standards of Proficiency for Practitioner Psychologists, along with the British Psychological Society (BPS)'s Code of Ethics and Conduct (BPS, 2018a), Code of Human Research Ethics (BPS, 2014), and Practice Guidelines (BPS, 2018b). These do not provide prescriptive ethical rules that can be applied to each specific clinical or research situation, rather there is a recognition of researchers' freedom to enquire if this is conducted in the spirit of the following principles:

- respect for the autonomy, privacy, and dignity of individuals and communities;
- scientific integrity;
- social responsibility;
- maximising benefit and minimising harm.

In the spirit of ethical professional decision-making, consideration was given to a range of factors when conducting the research reported in this thesis. Balancing the researcher's needs to derive scientifically sound information with the ethical and social responsibility to minimise harm to participants, staff, and the host institution was pivotal in designing the studies. Notable ethical considerations were the innovative nature of the research and theory, service users' vulnerabilities and risks, confidentiality, informed consent, and overlapping professional roles, along with a desire to elicit scientifically sound information about personal history, adverse childhood experiences, and offence-related information. A complex ethical decision-making process ensued during the early stages of the research planning, which focused on disentangling ethical dilemmas and balancing competing ethical and scientific demands. Managing the tension between the risk of harm and any potential benefits of the evidence garnered from examining this novel hypothesis was a major ethical dilemma to resolve.

3.3.1 Vulnerability and Risk

Risk of harm in research and the safety of participants should take priority in ethical considerations (Coles & Mudaly, 2010). Participants in the three empirical studies are considered “at risk” vulnerable adults (Care Act, 2014) because of their mental health condition(s) and ongoing detainment under the amended Mental Health Act (2007). All the participants had been diagnosed with a personality disorder, and many had experienced multiple adverse childhood and adult experiences. Safeguarding the welfare of these individuals was a priority, and this was a shared collective duty of the organisation, clinicians, and researcher. Prioritising the well-being of participants and ameliorating the real possibility of causing major disruption in service users’ lives by triggering trauma re-experiencing or potentially re-traumatisation was a pivotal concern (Varvin & Rosenbaum, 2003; Cowburn, 2005). The BPS ethical guidelines direct that unwarranted or unnecessary disruption should be avoided unless these are outweighed by the potential benefits of the research (BPS, 2018), and weighing up the potential threats associated with eliciting sensitive information against the potential scientific impact of the research was a critical factor in study design.

There were also “the potential social consequences or implications, either directly for the participants in the research or for the class of individuals represented by the research” (Sieber & Stanley, 1988, p. 49). The participants in the empirical studies were all involuntarily sectioned under the amended Mental Health Act (2007) and detained in a high-security forensic psychiatric hospital for treatment and protection of the public. Being aware of and sensitive to the wider political and practical ramifications of the research was critical, as this group are already stigmatised and socially excluded. There are also some high-profile individuals whose cases draw considerable media attention, and as such these cases need very thoughtful management to respect to their privacy. Additionally, these legally sanctioned individuals are dependent upon others to help restore their autonomy and freedom, and ultimately to make the decision for release back into society. Findings must therefore be treated with sensitivity to avoid unintentionally reinforcing negative public perceptions or unduly influencing the impartiality of the decision makers who will dictate when these individuals are considered safe enough to be reintegrated back into society (Liamputtong, 2007).

3.3.2 *Overlapping Professional Roles*

In conducting the research for this thesis, the author was placed in overlapping professional roles, that is, as researcher and practising clinician in the same setting. Unfortunately, the BPS ethical guidelines offer little specific commentary on this topic, referencing multiple relationships simply from the perspective of blurring professional and personal boundaries. This guidance does not reflect the author's situation, in which two professional roles are held. The terminology for describing the author's situation and current thinking on this subject is confused, and more research in this general area is necessary. The consensus is that multiple relationships are discouraged, but it is also accepted that they are unavoidable at times. The American Psychological Association (APA) provides some professional guidance on the matter, stating that "multiple relationships that would not reasonably be expected to cause impairment or risk exploitation or harm are not unethical" (APA, 2010, Section 3.05). In the absence of clear ethical guidelines on managing two professional roles that may cause a conflict of interests, scholarly works were consulted (Crowden, 2008; Pope, 1991; Sturm, 1998). Areas for consideration are outlined in these works, should a psychologist find themselves working with a client "in a professional role concurrently or consecutively with another professional or personal role" (Pope, 1991). Psychologists in "overlapping roles" should be:

- sensitive to their use of power to avoid any exploitation because of their positions;
- thoughtful about how the two roles overlap, in this case how the secondary role of researcher may interfere with the fulfilment of the responsibilities of the primary role (clinician);
- sensitive and alert to any harmful consequences due to the overlapping professional roles.

For clarity on this matter, the author considered her primary role as clinician, whose responsibilities include providing psychological treatment to improve well-being and help the person reduce their risk of causing serious harm to themselves and others. The overarching goal of the clinical work is to help each person live a life they find worth living, whilst making public-protection decisions about whether this person could live safely in conditions of lower security and possibly the community. The author's secondary role is that of a researcher trying

to generate knowledge and find solutions to active practice-based problems, such as treatment for service users with too much self-control.

Seeking informed consent for primary data collection with detained populations needs to be managed carefully because of the inherent power differential, and the overlapping professional roles makes this more complicated. The author's primary role as a clinician making decisions about a person's future detainment may interfere with an individual's perceived freedom to choose whether to participate in the research. There is the potential that service users may feel obligated or influenced to participate in data collection due to a therapeutic alliance with the author. They may fear negative evaluation or repercussions associated with extended detainment if they choose to not engage, or they may consider participation in research to be a mandatory part of hospital detainment. Engagement may also reflect a desire to please or gain favour with the author in the hope that this influences their clinical decisions about release or progression to a favoured placement. These are all real possibilities and managing the power differential resulting from the overlapping professional roles was essential to ensuring genuine engagement.

Expert opinion proffers that dual professional relationships are not always harmful, and they could be beneficial if managed carefully (Crowden, 2008). Being a clinician in the host institution where the research is being conducted provides unique insights garnered from having an insider perspective; ethical considerations about service users' potential vulnerabilities, reactions and the potential harm that may be caused to them when eliciting sensitive information is easier from this insider perspective. For example, the clinician may have observed similar research being conducted in the past, and knowing a service user's case formulation can offer guidance in how an individual may react. Ultimately, managing the potential harm to service users, staff, organisation, and public perception if service users have a life-threatening abreaction in response to the research data-collection processes was easier because of the overlapping professional roles.

3.3.3 *Sensitive Information*

Collecting primary data linked to sensitive information, adverse childhood experiences, and offending behaviour, runs the risk that service users may:

- a) provide unreliable and incomplete accounts due to deliberate attempts to deceive, poor recall, and/or memory problems. This would undermine the scientific integrity of the data, particularly in the studies presented in Chapter 5 and 7.
- b) become emotionally dysregulated and destabilised. It was thought any distress caused by sharing forensic history information would be minimal and manageable, especially as many of these individuals had shared their offending history on multiple occasions. As stated previously, the potential for an abreaction following disclosure of adverse childhood experiences was very high, and this risk was considered unwarranted given the innovative nature of the research question, the potential threats to the scientific integrity of the data, and the fact that other less-intrusive methods were available.
- c) disclose an offence the participant or another person has not been convicted of, and this raises a confidentiality conflict. The ethical principles of respect for the autonomy and privacy of participants would have to be usurped by public-protection responsibilities and the legal responsibility to report previously undisclosed crimes (as perpetrator or victim) to the police and other relevant criminal justice authorities. This would likely limit service-user disclosure and risk causing harm to both the research and the clinical relationship.
- d) become confused about the researcher's overlapping professional roles. For instance, if during research interviews a service user shared their perspective on a crime or previously unknown information about the extent of their offending, how could the clinician "unknow" this when making subsequent clinical decisions about risk? This is likely to inhibit participant disclosure and the researcher's ability to collect data. Alternatively, a naïve belief that research data and clinical decision-making would be kept separate might lead to therapeutic-alliance ruptures later.

3.3.4 *Duplication and Assessment Fatigue*

Additional ethical considerations were the duplication of data collection and assessment fatigue. Forensic service users interviewed over 20 years of clinical practice have often expressed negative attitudes towards psychological testing, which have been caused by experiences of excessive testing, interviewing or assessment across their institutional career in prison/hospital. This phenomenon has not been empirically verified, but the author's practical

knowledge of multiple forensic contexts would confirm these service-user sentiments. For instance, the research setting in which the studies were conducted had a 3-6-month assessment period prior to acceptance for treatment (Hogue et al., 2007), which meant that a considerable amount of data had already been collected. The author confirmed that these original assessment data had been recorded on the pre-existing service evaluation database or subsidiary treatment evaluation databases, and if it could be used then this would avoid duplication and assessment fatigue. It would also overcome some of the problems associated with eliciting sensitive data that were outlined above.

3.3.5 Confidentiality and Informed Consent

Maintaining the confidentiality of participants' identities and personal data, as well as storage, removal, and transportation of research data from the hospital were additional ethical considerations. The Unit's main service evaluation database and specialist treatment databases were identified as primary data sources. These hold demographic, forensic, clinical, and social-history information as well as psychological test data. Informed consent to use these data for research and service evaluation had previously been obtained, therefore ameliorating the potential negative impact that the overlapping professional roles could have on participants' perceived freedom to choose. It was also confirmed with the hospital managers and Nottinghamshire Healthcare NHS Foundation Trust Research and Development Committee that routinely collected clinical data could be used for the studies reported in this thesis. It was agreed the data could be obtained in an anonymised format, protecting service-user privacy, and this would be facilitated by a third party (specifically the Assessment and Treatment Co-ordinator).

After a scoping exercise to establish the potentially available data and variables on pre-existing databases, selected variables aligned to the research questions were requested and provided in an anonymised format. Each participant had been assigned an ID number, and only the host institution had a master list linking ID numbers with names, which never left the hospital at any time. When anomalies in the data were identified, the database administrator was contacted to answer and rectify queries. The data were securely stored, transported, and removed from the hospital on an encrypted and password-protected flash drive provided by the Hospital and approved by the Hospital's IT department. The Nottinghamshire Healthcare NHS Research

and Development Committee was informed, and they agreed for the anonymised data to be stored on the flash drive, which was always locked in a secure filing cabinet. The data were also transferred into a password-protected file on the researcher's personal computer. Only the author and supervisory team had access to the anonymised dataset, and at no time was it sent by email or stored on data-sharing services such as Dropbox or OneDrive.

3.4 Ethical Conclusions

Based on the aforementioned ethical considerations, it was concluded that collecting primary data linked to sensitive information was likely to put vulnerable participants at risk, threaten the scientific integrity of the data, and create blurred ethical boundaries that would be very difficult to manage. It was also thought that it would be impossible for the researcher to unknow the information gained during primary data collection, especially if this revealed new insights about offending and adverse experiences. The author would also have to report previously undisclosed offences, whether as perpetrator or victim, to the relevant authorities, including the police. The use of pre-existing data, such as official conviction records and healthcare records, was considered the most ethical and effective way of balancing scientific integrity, the novelty of the research question, and service-user vulnerability and risk. It also helped manage the potential complications caused by overlapping professional relationships in gaining informed consent and managing the boundaries of limited confidentiality. Use of pre-existing data, where possible, also worked to the strengths associated with overlapping professional roles, as the author's insider perspective provided knowledge about the breadth of data available, the quality of pre-existing data, and where to locate it. The author had also been involved in collecting a lot of the original data on the database as a clinician or person supervising others in its collection. Additionally, RO-DBT, a new treatment for overcontrolled conditions, was being implemented at the time the studies in the thesis were being developed, and this provided an opportunity to collaborate and support systematic extraction of pre-existing data for the new RO-DBT treatment database. The author worked in collaboration with the RO-DBT team and research assistants to ensure that data-collection methods were scientifically robust and data quality was reliable and valid on this treatment-specific database. This is outlined later in this chapter.

3.5 Phase I: Systematic Review

The first empirical chapter in this thesis (Chapter 4) is a systematic review. Whilst a review of the literature or a synthesis of existing research is often a precursor for any empirical study, a systematic review was selected in addition to other review methods as it is one of the most robust and esteemed methods of literature review (Grant & Booth, 2009; Greenhalgh et al., 2018). It also produces a high-quality piece of research evidence to support practice development and to inform further research activities, identifying potential gaps in the literature, and support theoretical development (Alper & Haynes, 2016; Greenhalgh et al., 2018).

According to Moher et al. (2009):

A systematic review is a review of a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise relevant research, and to collect and analyse data from the studies that are included in the review. Statistical methods (meta-analysis) may or may not be used to analyse and summarise the results of the included studies. (p.1)

The perceived strength of a systematic review is that it draws together all known knowledge on a topic area in a manner that is replicable because of the explicitness of the review and its methodology and audit trail. In contrast to narrative approaches, systematic reviews often adhere to predetermined criteria and guidelines in literature research, processing identified records, and writing up the review. Such guidelines include the Cochrane Handbook (Higgins et al., 2019) and the Joanna Briggs Institute manual for evidence synthesis (Aromataris & Munn, 2020). This transparent, methodical, and systematic approach helps overcome concerns about researcher bias in the literature accessed and chosen for a particular review. Consequently, systematic reviews in and of themselves can be interventionistic, contributing to evidence-informed initiatives in the real world through being used to support the development of policy, best-practice documents for practitioners, and initiatives at other levels of society (Fox, 2017).

Completing a systematic review has also been identified as being particularly useful as part of doctoral work, helping students develop process-related and methodological expertise related to synthesis of primary studies. It supports acquisition of a deep understanding of the current literature and can foster acquisition of critical analytical skills in identifying the strengths and limitations of various research designs and gaps in the literature (Daigneault et al., 2014; Perry & Hammond, 2002).

Given its practical and developmental benefits, a systematic review was undertaken, following the required universal steps. These are detailed in the following subsections.

3.5.1 Step 1: Formulating the Research Question

The specificity of the research question is integral to the systematic review, as “well-formulated questions will guide many aspects of the review process, including determining eligibility criteria, searching for studies, collecting data from included studies, and presenting findings” (Higgins et al., 2019, Section 5.1.1). The review question is often a narrowly focused research question with tightly specified aims and objectives, which are predefined in the systematic review protocol (see Appendix A). The review question in this thesis was formulated in accordance with the best practice described above.

3.5.2 Step 2: Search Strategy

Conceiving a rigorous and objective search strategy that strikes a balance between sensitivity (comprehensiveness) and precision (maintaining relevance) is an essential yet complex task when conducting a systematic review (Higgins & Green, 2011; Aromataris & Munn, 2020). A highly sensitive search strategy aims to find all potentially relevant articles and include as many sources of information as possible. Concomitantly, a precise search strategy identifies true positives and minimises the number of false positives. Errors at the planning and implementation phases of the searching process can result in reporting bias and an incomplete evidence base for the review. To support the development of a complete and precise search strategy, a scoping review is often recommended in systematic review handbooks (Higgins et al., 2019; Aromataris & Munn, 2017). A scoping review was completed as part of the preliminary work for the systematic review in this thesis, and this helped obtain an overview

of the research area, supported development of the search strategy, and helped identify suitable bibliographic databases and search terms.

The most efficient way of identifying the initial set of references for a systematic review is to search bibliographic databases, and the reviewer needs to decide which databases to use. The Cochrane Handbook (Higgins et al., 2019) recommends using at least three databases. The standard generic health databases – PubMed/Medline, Embase, and Cochrane Library – are highly recommended for systematic reviews of interventions. These generic health databases are often used in conjunction with subject-specific databases, such as CINAHL and PsycInfo, but ultimately, database selection should be guided by the review topic (Aromataris & Munn, 2020; Higgins et al., 2019).

In this thesis, only Medline (ProQuest) was used, as the scoping review established that other generic health databases such as Embase and Cochrane Library offered little to the current review question. These databases are more directed towards medical phenomena and interventions, and it was thought they offered little more than what Medline already provided. Additional specialist databases were selected to support sensitivity and precision based on findings from the initial scoping review. The following electronic databases were searched: Applied Social Sciences Index and Abstracts (ASSIA – ProQuest); Criminal Justice Abstracts (EBSCO); International Bibliography of the Social Sciences (IBSS – ProQuest); PsycArticles (ProQuest); PsycInfo (ProQuest); PubMed; Science Direct; and Google Scholar.

The standard approach to identifying a set of initial references is to use bibliographic databases, but these are biased towards published studies. To avoid publication biases, the systematic review search strategy incorporated ways to access “grey literature”. Grey literature covers published material not indexed in bibliographic databases, and this includes technical reports, official publications, conference papers, dissertations, and research in progress. This grey literature was identified through specialist databases, such as Health Services Research Projects in Progress (HSRProj), National Criminal Justice Reference Service (NCJRS) Abstracts, Social Services Abstracts (ProQuest XML), and unpublished dissertations and theses (ProQuest). Additionally, the reference lists of all articles selected for extraction were hand-searched, and contact was made with key researchers in the area.

Most bibliographic databases have search filters to narrow the search to predefined methodological criteria. The following parameters, if available, were used on each bibliographic database:

- **Document type** was limited to journal articles, book chapters, and dissertations/theses, as they were thought the most likely sources of empirical studies.
- **Language** was restricted to English, as research indicates this makes little difference to the total number of articles identified unless searching for something that has non-Western origins e.g., Chinese herbal medication or alternative therapies (Morrison et al., 2012). To ensure that the language filter did not unduly bias the pool of studies identified, during the initial search process, search terms were run with the language filter off and the total number of articles identified was recorded. The search terms were then run again with the language filter “English” on, and the total number of articles identified was again recorded. As predicted, the totals were relatively similar (identical at times), and only the results obtained with the English language filter turned on were retained.
- **Time period** was set as January 1962 to December 2019, as overcontrol in forensic samples was first conceived by Megargee and Mendelsohn (1962) and developed in subsequent studies (Megargee, 1966). The final version of the systematic review was written in early 2020.
- **Age group** was limited to adolescence (13–17 years) and adult (18 years and older).
- **Population** was limited to humans.

3.5.2a *Eligibility Criteria*

For a search to be robust, attention should be given to the main concepts being reviewed. These are always explicitly operationalised and documented in a systematic review, with different approaches often used for qualitative studies (e.g., SPIDER [sample, phenomenon of interest, design, evaluation, research type] and ECLIPSE [expectation, client group, location, impact, professionals, and service]) and quantitative studies (e.g., PICOS [population, intervention, comparators, outcomes, study design] or an adaptation of this [PCO/PCOS]). No established

structures exist to guide this process for mixed-studies reviews, rather the reviewer chooses how best to operationalise their review question.

The scoping review revealed that quantitative studies were more likely to be used when studying the phenomenon of overcontrol, and consequently an adapted version of PICOS was chosen to operationalise the review question. The PICOS approach sets the parameters for the search strategy and provides the basis for the eligibility criteria that are used to determine if a study is included or excluded. Additionally, the parameters outlined in PICOS permit enough commonality amongst the studies to make meaningful comparisons and conclusions. With evolution and expansion of the systematic review method from its origins in synthesising intervention randomised controlled trials (RCTs), the term PICOS has been adapted to suit different review questions, with components being dropped or substituted to meet the requirements of the particular review question (Higgins et al., 2019). In this review, the I (intervention) component was dropped, and the C (comparators) component was substituted, becoming condition (overcontrol). The PCOS eligibility criteria in this review were defined as follows:

- **Population:** This was limited to legally sanctioned individuals in a range of criminal justice settings, such as prisons, young offender institutions, secure hospitals/facilities/units, and community forensic services such as parole or probation. Setting liberal population inclusion criteria ensured a comprehensive examination of overcontrol as well as supporting identification of potential demographic profiles and population variations that may be contributing to inconclusive findings.
- **Condition:** All studies that had a clearly identified or diagnosed overcontrolled sample were included, regardless of the sample identification method employed. If no explicit method for identifying the overcontrolled sample was stated, or the study sample included only undercontrolled individuals or those with low self-control, then the study was excluded.
- **Outcomes:** Studies were included if they reported findings linked to overcontrolled personality, forensic characteristics associated with overcontrolled offending, or any of the three components of maladaptive overcontrol posited by Lynch, (2018a), that is, biotemperament, family/environment, and restricted coping, such as emotional

inhibition. This approach permitted examination of any outcome variables of prior interest within the three broad overcontrolled domains. No restrictions were put on how the outcome variables were measured, reflecting the pragmatic position outlined above and the nature of the systematic review, which was mixed studies/methods. This also provided an opportunity to investigate the impact of measurement variation on study findings.

- **Study design:** Single case studies and expert-opinion papers were excluded, and all other types of study group design were included. This permitted a review of the group designs employed over the years, consideration of design variability on reported outcomes, and a comprehensive review of existing research and findings associated with excessive self-control in offending populations.

3.5.2b *Search Terms*

The next step in preparation for conducting the search was to identify key concepts and how to articulate these in search terms. Developing search terms that inform a systematic review is an iterative process, and it took several attempts to develop sufficiently sensitive and precise search terms. As recommended in systematic review handbooks (Higgins & Green, 2011; Aromataris & Munn, 2020), free text and controlled vocabularies were used to ensure that as many potential terms as possible were generated. **Free-text** terms were searched as textwords in the title, abstract, and author's keywords. These free-text search terms include the actual concept term as well as alternative terms that may be used to describe it, such as synonyms, phrases, UK/US terminology, and medical/laymen's terms. **Controlled vocabularies** and subject headings provide an organisation and uniformity to the indexing of publications and create consistency and precision in how articles are catalogued. Subject headings and controlled vocabularies differ between bibliographic databases, and examples of controlled vocabulary are Medical Subject Headings (MeSH: PubMed, Medline, Cochrane), Emtree (Embase), CINAHL Headings (CINAHL), PsycInfo Thesaurus (PsycInfo), and Index Terms (Scopus). Controlled vocabularies were used if available, and search terms were adapted for individual databases to accommodate the different search interfaces, search options, subject headings, internal referencing processes, and ways of describing the content of each article. Use of controlled vocabularies also increases the chance of identifying relevant information no

matter what terminology the author may have used within their publication, and they search for the relevancy of an article beyond simply the words contained in the title and abstract. Advanced controlled-vocabulary techniques were used, such as “exploded” searches, as this meant indexed records were searched for the subject heading as well other terms that are derivatives (more specific, narrower terms) of the search term. Exploding search terms provides a fast way to find related concepts in a single search and improve sensitivity.

Advanced searching techniques/commands were also applied to make the search more specific, efficient, and expansive. These techniques and functions differ greatly between databases, but if available, phrase searching, truncation or wildcards, and proximity operators were used as part of the search strategy. Phrase searching was used to seek articles containing a phrase rather than a set of keywords in a random order, and this was useful if the words on their own were common, such as “mental” and “disorder”. Truncation was used to broaden the search for variant endings, with an asterisk added to the root of the word. For example, “offen*” was used to locate reference to offend, offends, offending, offender, offenders, offended, offensive, offence, or offense. Proximity operators (also known as adjacency operators) function as precision maximisers that enable the reviewer to define how close search terms can be found in relation to one another. The scoping review revealed that the level of security was often used in titles and abstracts, and certain words were generally in the vicinity of each other (e.g., “medium secure” or “medium security”).

Boolean operators were also used to combine free-text and controlled-vocabulary terms. As recommended in systematic review handbooks, the identified search terms were used individually, and then Boolean operators were added to combine the terms. A systematic process of building up the search terms was used to help prevent human errors and allow the reviewer to see which search terms added value to the overall search and whether a particular search term produced too many irrelevant results. The Boolean OR operator was used to broaden the search to capture all articles on a topic regardless of which term was used in the article. The Boolean AND operator was used to narrow the search by only capturing articles in which all concepts appear.

Once the search terms and strategy are finalised, the systematic review handbooks suggest testing the terms to analyse their sensitivity, precision, and overall performance. The Cochrane

Handbook (Higgins et al., 2019) suggests a few different ways to test the performance of the search terms, such as checking whether they can find publications that have been recommended as key publications, or those noted in references or citation searches and references the reviewer may not have known about. Finally, to execute high-quality search strategies, it is recommended that the search terms are peer reviewed, preferably by enlisting the support of a specialist Cochrane-trained reviewer/librarian, (Cochrane Handbook, Higgins et al., 2019). The search terms used in this thesis were trialled using two databases, Medline and PsycInfo, and they were peer reviewed by the PhD supervision team and a specialist Cochrane-trained librarian at Nottinghamshire Healthcare NHS Foundation Trust.

The search terms and their syntax were refined to improve technical accuracy of the strategy and to improve coverage of all relevant aspects of the research question outlined in the systematic review protocol. The names, credentials, and institutions of the peer reviewers of the search strategies were noted in the review (with their permission). Additionally, as per systematic review guidelines, the search process was recorded in enough detail in the Methods section to allow it to be reproducible, to the extent that this is possible. Details about the experts contacted, along with results from hand-searching reference lists, websites (e.g., Google Scholar), and decisions about search iterations, were recorded as part of the ongoing internal record-keeping and were appropriately incorporated into the final review write-up.

3.5.3 Step 3: Searching and Extraction

The initial search strategy (identification phase) was used to capture as much literature as possible relevant to the research questions. During the identification phase, the total number of records retrieved was recorded for each database in internal records, and these totals were then stated in the results section of the report. The initial search records were then screened for duplicates, and where possible this was done using RefWorks or functions on bibliographic databases for expediency and accuracy. The total number of records removed as duplicates and the total number of records left for screening were recorded and included in the results section of the final report. During the screening phase, the title and abstract were reviewed, and decisions about screening in or out were based on the predetermined PCOS eligibility criteria. The total number of potentially eligible records was recorded and earmarked for full-text extraction. The total number of excluded records was also recorded.

All potentially eligible articles were extracted and read, and they were critically appraised using the predetermined PCOS inclusion and exclusion criteria. Again, the reference pool was narrowed, leaving a set of specialist references that were clearly linked to the review question. Reference lists of full-text articles were hand-searched to reveal any previously unidentified papers. Any references identified through hand-searching were subjected to the screening steps outlined above. The final sample of included articles was recorded and noted in the final report, along with the total number of full-text records excluded and a brief account of the reasons for these exclusions. The total numbers of quantitative, qualitative, and mixed-methods studies in the final sample of included records were also reported in the results section.

Once the final sample of included references had been identified, they were re-read to fully review their content, extract the data, and assess the quality of each reference. Noyes et al.'s (2019) review of data-extraction methods identified the following types:

- A bespoke review with a specific data-extraction template.
- A generic data-extraction template by study type, such as those developed by the National Institute for Health and Care Excellence (NIHCE, 2012).
- A generic data-extraction template with some minor adaptations for a specific review.

In this systematic review, a bespoke data-extraction template was developed to capture demographic information and the core constituents of the PCOS criteria. The participant characteristics were recorded, and this was guided by the PROGRESS framework (place of residence, race/ethnicity/culture/language, occupation, sex [gender], religion, education, socioeconomic status, and social capital). The PROGRESS framework ensures that data extraction maintains an explicit equity focus (O'Neill et al., 2014) and that all relevant demographic information is considered and extracted. Additional participant characteristics were added to the data-extraction template, specifically nationality, marital status, amended Mental Health Act (2007) classification and section, and average length of stay (if applicable).

The condition and outcome measures were defined using a “best-fit” framework approach (Carroll et al., 2013). The best-fit framework approach involves extracting data from primary studies against a priori theory or a predetermined framework to better understand a phenomenon of interest (Carroll et al., 2011, 2013). Megargee's forensic theory posits that

legally sanctioned individuals who are overcontrolled will produce distinct offending, victim, antisocial personality, and coping profiles. Lynch's (2018a) theory of overcontrol derived from mental health populations provides a more thorough and comprehensive explanation of the distinct neurobiosocial characteristics of maladaptive overcontrol. Lynch implicates biologically based biotemperamental biases, socio-developmental experiences, and restricted coping in the development and maintenance of maladaptive overcontrol.

Using the best-fit framework approach, the following themes were identified from relevant theories: forensic, neurobiological, socio-developmental, and clinical. Forensic data extracted included information about offending and victim characteristics. Offence data extracted included information about index offence, types of offences, age at first conviction, age at first violent conviction, age at first sexual conviction, sentencing history, weapon use and type, setting for offence, and unusual crime-scene characteristics. Victim data extracted included information about the victim's age, sex, ethnicity, and prior relationship, if any, with the perpetrator. Clinical characteristics including personality functioning, thinking style, emotion regulation, impulse control, interpersonal functioning, comorbid mental health conditions, personality disorders, psychopathy, and any results from psychometrics and psychological tests. Socio-developmental characteristics included family background, trauma history, parenting experiences, and parental discipline.

Added to these theoretical themes was an additional category called prevalence, referencing the proportion of over- and undercontrolled individuals identified in cross-sectional studies. The extraction tool also included information about document type, source of publication, authors, location, date of publication, theoretical affiliation, sample assignment method, psychological instruments used, and demographic information. The S (study design) component of PCOS and other methodological information was incorporated into the extraction template in the form of a critical-appraisal tool.

Critical appraisal is an integral process in systematic reviews, and it is used to identify potential threats to the validity of the research findings. Inclusion of a quality assessment of the included references also offers the eventual consumers of the review an opportunity to make informed decisions about the quality of research evidence in a specific area and the quality of the papers the review findings are based upon. There are two overarching approaches to critical appraisal.

An idiographic approach to appraising references, which is more commonly used in narrative reviews, allows the reviewer to evaluate references in a non-structured manner and/or based on their personal idiographic criteria and points of interest. The nomothetic approach uses structured critical appraisal tools (CATs), which act like a checklist of areas to be considered when appraising each reference. These CATs appraise the reference against predetermined methodological criteria, reporting criteria, or both. Reporting criteria in CATs include: consideration of the study's aims, design, and abstract; whether there is clear, balanced, and informative reporting; and whether the detail is sufficient for others to reproduce the study. Methodological criteria include information such as ethical matters, research design, potential sources of bias, confounding variables, recruitment, sampling, data-collection methods, and data analysis. One advantage of using a CAT is that there is transparency in the appraisal process and a level of consistency across the references being reviewed. A potential disadvantage is that these nomothetic tools may not offer an opportunity to ask about potential sources of bias that could be important for the specific research questions (e.g., allegiance effects or conflicts of interest). It was thought that the advantages of CATs outweigh their disadvantages, and a nomothetic-based tool was therefore chosen for this work.

There are many CATs available, and selection of the tool best suited to an individual systematic review is essentially a pragmatic and practical decision. The study design coverage directs which tools may be appropriate, as many CATs are based on single research designs such as RCTs, or they apply to a single research category (e.g., qualitative). Mixed-studies systematic reviews (MSSRs), sometimes called mixed-methods systematic reviews, are an emerging field of enquiry, particularly in the areas of public health and social policy (Heyvaert et al., 2013; Pluye, 2015). The term MSSR is preferred in this thesis, as it more precisely and accurately captures the study inclusion criteria and avoids potential confusion with systematic reviews that focus solely on the research category mixed methods.

Complex phenomena/interventions can be examined using MSSRs, and they permit the inclusion and synthesis of quantitative, qualitative, and mixed-methods research. Results and findings from different methods can also be compared, with similarities and discrepancies within and between methods being identified and examined. These insights may produce more comprehensive conclusions than reviews derived from single research designs or categories.

For instance, the Joanna Briggs Institute suggests that “through the development of a well-structured [mixed-methods systematic review], the numerical data inherent in the positivist paradigm can support or endorse the equally important opinions and perspectives presented in interpretive and critical paradigms and vice versa” (Aromataris & Munn, 2020, Chapter 8.1).

There are essentially two options available to researchers who want to use CATs when conducting an MSSR, specifically:

1. to use different tools for the different study designs included in the review (e.g., RCTs, qualitative methods),
2. to use a single tool that includes criteria covering several study designs; these are essentially amalgamations of single-design/single-category tools.

There appears to be minimal difference between using multiple tools and using a single combined tool, although the latter was chosen here for ease of use and because its reliability and validity had been tested as a combined tool (Halcomb, 2019). There are a few specific mixed-methods appraisal tools, and sadly a number of these tools have not been developed in accordance with systematic review guidelines. For instance, there may be no user manual or no appraisal tool for actual mixed-methods study designs or they may not have demonstrated sufficient reliability and validity (Sirriyeh et al., 2012). The final area to consider in selecting a CAT is whether it focuses on how a study is reported, the methodology employed, or both. To ensure a thorough evaluation of each study, it was decided that both reporting and methodological criteria were important in this review. This also addresses the fact that some studies may be poorly written by today’s standards but nonetheless methodologically robust (Halcomb, 2019).

The two most commonly used tools specially designed for complex mixed-studies systematic literature reviews are the Mixed Methods Appraisal Tool (MMAT; Pace et al., 2012; Pluye et al., 2009) and the Crowe Critical Appraisal Tool (CCAT; Crowe & Sheppard, 2011; Crowe et al., 2012). Both the MMAT and CCAT include criteria for quantitative, qualitative, and mixed-methods studies. They both have a clear origin of criteria, user manual, scoring criteria, and construct validation, and they both demonstrate good inter-rater reliability and validity (Crowe et al., 2012; Pace et al., 2012). The main difference between them is that the MMAT

focuses solely on methodological criteria whereas the CCAT (v1.4, 2013) covers both reporting and methodological criteria, and it was selected for this reason.

Finally, the bespoke extraction tool incorporated all components of the PCOS and CCAT, and these were inputted into online survey tool SurveyMonkey, along with the other extraction variables, to develop a comprehensive electronic extraction tool. Using an electronic platform made data entry and management, as well as the extraction of the final data pool for analysis, more efficient and reliable. The final extracted data were subjected to a verification process, which involved re-reading the articles, reviewing the data extracted and, if necessary, refining the final Microsoft Excel worksheet extracted from SurveyMonkey.

3.5.4 Step 4: Synthesis

Synthesis is a process of bringing together data from a set of included studies with the aim of drawing conclusions about a body of evidence. Synthesis can either be quantitative or qualitative, and planning for the synthesis started at the protocol stage. The protocol specified an a priori stipulation of the core components of the PCOS, how these might be merged and combined for synthesis, and what methods may be used. There are various quantitative and qualitative methods used to integrate data, and these can be used in isolation or in combination with each other. Common approaches to integration and sequencing outlined in systematic review handbooks (Aromataris & Munn, 2020) are either convergent or sequential (whereby one phase of synthesis is contingent upon completion of a previous phase). Synthesis and integration in this thesis involved three stages, and these are described in the next paragraphs.

Stage I involved a preliminary narrative and quantitative synthesis of all published and unpublished forensic studies between 1962 and 2019. In the internal recording process, details were noted about authorship, theoretical affiliation, publication date, journal, participant information, study design, methods used for sample identification, sample size, sample location, setting, outcome measures, and statistical methods. A pared-down table was constructed to make internal recording more manageable and publishable, and a table showing the characteristics of the included studies was included in the appendices of the thesis. Data detailing the study characteristics were tabulated and eventually summarised in succinct narrative summaries with basic descriptive statistics, if relevant.

This stage of the systematic review helped map publication trends and academic interest in overcontrol and criminal behaviour over time, as well as trends in research design and data analysis. Preliminary cross-study synthesis was undertaken, including descriptions of the amount of information found. This step of the systematic review aided examination and comparison of the number of studies contributing to the systematic review and helped determine how studies could be grouped to address the review questions. In this systematic review, studies were grouped based on research designs and sample elicitation methods, and they were summarised and synthesised separately in the first instance. This was because different study designs had fundamentally different methodological strengths and weaknesses that could be contributing unique knowledge based on the design. Describing the included studies individually was also useful for becoming familiar with the results of these studies, highlighting important characteristics, and identifying similarities or differences in the context, population, study design, and methods.

Stage II attempted to clarify a prevalence rate for overcontrol based on prior forensic research and involved a quantitative synthesis of cross-sectional studies. Meta-analysis, which is the gold-standard approach to synthesising quantitative data, was considered. One potential advantage of meta-analysis is its high precision, as it permits the effects of lots of small studies to be combined to produce an overall effect estimate. Meta-analyses can also answer questions not posed by the individual studies, such as the consistency of an effect across a wider range of populations and interventions. Like narrative reviews, they can also be used to settle controversies arising from apparently conflicting studies or to generate new hypotheses. Statistical synthesis, which is part of meta-analysis, allows the degree of conflict to be formally assessed and the reasons for different results to be explored and quantified. However, it is not always possible or appropriate to combine the numerical results of all, or perhaps some, of the studies.

Meta-analysis can be potentially misleading, “particularly if specific study designs, within-study biases, variation across studies, and reporting biases are not carefully considered” (Higgins & Green, 2019, Chapter 10). Whilst some heterogeneity is expected, in terms of clinical, methodological, and statistical diversity, too much variation is problematic and contraindicates the use of meta-analysis. Clinical heterogeneity refers to variability in the

participants, interventions, and outcomes studied. Methodological heterogeneity may be described as variability in study design, outcome measurement tools, and risk of bias. Variability in the effects being evaluated is known as statistical heterogeneity, and this is a consequence of clinical or methodological diversity, or both, amongst the studies.

Testing for heterogeneity is controversial, as there are typically not enough data in systematic reviews to allow for the reliable investigation of its causes (Higgins et al., 2019). Nonetheless, a statistical test of heterogeneity can inform the researcher whether major problems with heterogeneity exist, even if the causes can only be speculated upon. It also implies that studies may need to be more consistently designed to address specific questions in the future. A test of study heterogeneity was completed and reported in the results section of the write-up. Significant problems with heterogeneity were confirmed, but it is impossible to model the variation between studies with moderators, as they were not consistently measured across studies nor easily coded, which suggests that the data lends itself better to a narrative review.

Stage III was contingent upon Stage II establishing a substantial overcontrolled population amongst legally sanctioned individuals. Stage III of the systematic review focused on testing the theories of overcontrol by Megargee (1966) and Lynch, (2018a). Meta-analysis was ruled out at this stage, as the clinical and methodological diversity of the studies was so great that merging them would be meaningless. Other ways of expressing and synthesising the results of these studies were needed, and a qualitative synthesis was indicated. The original plan was to group all studies in accordance with the four theoretical outcome domains, that is, forensic (offence and victim), biotemperamental, socio-developmental, and coping characteristics. Initial steps in preparing the data for synthesis during stages I and II indicated that it would be virtually impossible to synthesise the data in this way in the first instance, and proceeding with this method would mean that valuable information that may explain inconsistencies might get lost. The synthesis plan was therefore modified from that specified in the systematic review protocol, with studies firstly organised based on their sample allocation method. Studies were grouped into one of three categories, and then the originally planned synthesis was conducted:

1. Grouping analysis, typically cluster analysis;
2. Qualitative component, and this included mixed method studies;
3. Comparison study:

- a. Sample assignment based on psychometric or psychological test, typically Overcontrolled Hostility Scale (OHS);
- b. Sample assignment based on chronicity and/or severity of violent-offence convictions.

These post hoc changes to synthesis and integration were recorded in the results section, along with the rationale for them.

With MSSR reviews, there is the added consideration of how to integrate qualitative and quantitative data, and it is recommended that quantitative data be “qualitised”, as codifying quantitative data is less error-prone than attributing numerical values to qualitative data (Joanna Briggs Institute, 2014). Qualitising involves extracting data from quantitative studies and translating or converting them into “textual descriptions” to allow integration with qualitative data. Aromataris and Munn (2020, Chapter 8.2) combined two previously articulated data-integration approaches for MSSR (Sandelowski et al., 2006; Hong et al., 2017) and posited that there are three designs, specifically convergent integrated, convergent segregated, and sequential/contingent. A convergent integrated design was used. Philosophically, this design rests on the assumption that quantitative and qualitative data can both address the same research question and can be directly assimilated and combined once the data have been transformed into the same format. This design fits with the overarching pragmatic philosophical position outlined earlier.

A narrative synthesis is usually the first step in looking systematically at, and organising, the qualitative/qualitised data. This was more detailed than just simply describing or summarising the main features of each study in turn, although this was a starting point. Cross-study synthesis was undertaken, exploring patterns in similarities and differences within and between studies linked to the outcome variables. Possible explanations for the patterns of results were considered and espoused in the results and discussion section of the review. There are different ways to approach this more detailed narrative synthesis, and the approach chosen should be rigorous, transparent, ideally specified in advance (i.e., at protocol stage), and followed systematically. Commonly used approaches to narrative synthesis are thematic synthesis (Hong et al., 2017; Thomas & Harden, 2008), realist synthesis (Pawson et al., 2005), narrative summary (Hayvaert et al., 2017), and framework synthesis (Carroll et al., 2011). Each of these

have their own strengths and weaknesses, and the reviewer needs to choose which approach best suits the data and the review objectives.

A framework synthesis method (Carroll et al., 2011, 2013) offered the most compatible approach for this systematic review. It is augmentative and deductive (building on this existing model or framework), rather than grounded or inductive (starting with a completely blank sheet). As with other approaches to evidence-based practice, the testing of theories using framework synthesis permits examination of their “testability, falsifiability, their internal logic, and their fit with the evidence” (Kelly et al., 2010, p. 1061). It also offers a relatively efficient, transparent, and systematic method for data transformation and integration of mixed-studies data, particularly when compared to more exclusively interpretative forms of narrative synthesis e.g., meta-ethnography or critical interpretive synthesis.

Framework synthesis was developed specifically for MSSR to develop, test, reinforce, and build on an existing theory or model, especially when the model had been conceived for a potentially different but relevant population (Carroll et al., 2011, 2013). This reflects the current systematic review’s objective associated with theory testing (Megargee, 1966; Lynch, 2018) and extending the application of Lynch’s (2018a) theory of overcontrol to a new (forensic) population.

Framework synthesis begins by identifying a foundation theory, and through a process of thematic reduction, the key elements or variables are identified and then used to create an a priori framework for integration. In this systematic review, the central theoretical themes in the framework, drawn from Megargee (1966) and Lynch, (2018a), were labelled forensic, biotemperamental, socio-developmental, and clinical characteristics. The framework was subsequently used to pool the quantitative and qualitative data from the four groups of studies by coding them against the a priori thematic/conceptual framework.

3.5.5 Step 5: Writing the Review

International multidisciplinary groups have collaborated to develop reporting guidelines for systematic reviews (Harris et al., 2014; Moher et al., 2009). Writing a systematic review protocol before starting the review is highly recommended, as it helps minimise the potential

for non-reporting biases and helps readers evaluate the completed review to judge how far it fulfilled its original objectives (Lasserson et al., 2016). In this work, a review protocol (Appendix A) was developed using the PROSPERO template, which follows the reporting guidance outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (Moher et al., 2009). The PROSPERO-based review protocol in Appendix A includes a statement about the background to the review question, review objectives, criteria for considering studies for inclusion in the review, search methods, a complete search strategy for PsycInfo and Medline, data collection and analysis, and how the risk of bias in the studies included would be assessed. Other information listed includes acknowledgments and declarations of interest.

A high-quality systematic review accurately documents all steps and judgments in the systematic review process, with a transparent and comprehensive write-up allowing others to evaluate the rigour of the methods applied, reproduce the review, and verify its results (Higgins & Green, 2011; Moher et al., 2009). The PRISMA statement (2009) is the worldwide-accepted standard for reporting systematic reviews, and this guided the final review report. As per PRISMA guidelines, a structured abstract organised under the headings background, methods, results, and conclusions was included. A structured abstract gives the reader more complete information than an unstructured abstract and helps readers quickly determine the scope, processes, and findings of a review without reading the entire report (Froom & Froom, 1993; Hartley, 2000; Pocock et al., 1987). The abstract was targeted and written in such a way as to be easily accessible to healthcare decision makers (clinicians, consumers, and policymakers) rather than just to researchers. The other PRISMA-recommended sections of a systematic report were included, namely background/introduction, methods, results, discussion, a summary of potential biases, and conclusions drawn about implications for practice. Finally, administrative information was included as per PRISMA recommendations, that is, acknowledgements, contributions of authors, declarations of interest, differences between the protocol and the review, and sources of support.

3.6 Phase II: Comparison Studies: Studies Comparing Overcontrol and Undercontrol

The three empirical studies reported in this thesis used a retrospective design employing pre-existing healthcare data that were routinely collected as part of clinical practice. All participants were detained in a high-security forensic hospital, and the over- and undercontrolled comparison groups for all studies were discerned from this sample. A two-step sample assignment process, using International Personality Disorder Examination (IPDE) assessment results and expert panel ratings, was applied to identify comparison groups in all three studies.

Study 1 (Chapter 5) tested the veracity of Megargee's overcontrol theory (1966) and examined hypothesised differences in the forensic characteristics of over- and undercontrolled individuals detained in a psychiatric hospital. This relied on official conviction data, offence information gleaned from clinical interviews, and scores on personality measures stored on a pre-existing service evaluation database. Study 2 (Chapter 6) examined the veracity of the neurobiological and coping components of Lynch's (2018a) theory of overcontrol and relied heavily on psychological tests, structured observations, and diagnostic interview data, which had also been recorded on the pre-existing service evaluation databases. Study 3 (Chapter 7) examined the nurture component of Lynch's theory, considering the socio-developmental histories and levels of adverse childhood experiences amongst over- and undercontrolled comparison groups. This study relied on information recorded in Social History reports often written to a standard template. These were prepared from clinical interviews, official records, and often third-party interviews with parents, carers, and/or siblings. The findings of all studies were merged in the final conclusions to give meaning and detail to our understanding of overcontrol and criminal behaviour within the frameworks of Megargee's and Lynch's conceptualisations of overcontrol.

3.6.1 *Retrospective Design*

Retrospective studies investigate a phenomenon, situation, problem, or issue that has happened in the past, and they are usually conducted using data available for that period or on the basis of respondents' recall of the situation (Kumar, 2018). A retrospective design is recognised as a particularly helpful design when dealing with rare phenomena, identifying feasibility issues,

or collecting pilot data associated with innovative ideas (Hess, 2004). Retrospective designs can also help identify potential risk factors associated with a condition, and these can be tested in future prospective studies (Hess, 2004).

This type of study design is, however, vulnerable to numerous biases and is generally considered a lower level of evidence when compared with prospective studies. Retrospective studies can only determine an association, and reliance on convenience sampling means that the sample may not be representative of the general population and may be prone to selection bias. Recall bias or misclassification bias are also thought to be more likely in retrospective designs, given the reliance on secondary data, which is often collected by somebody other than the researcher for reasons other than research (Hess, 2004; Jansen et al., 2005). There are ways to ameliorate these biases, though they are never truly eliminated, but this is also the case for many other types of design.

A retrospective design using pre-existing data was selected as it was considered the most ethical and pragmatic approach given some of the challenges outlined above. Using routinely collected clinical data also embraced the strengths associated with overlapping professional roles and ameliorated some of the negative impacts previously discussed. Finally, and most importantly, using pre-existing data was the safest way to prevent any unnecessary harm being caused to participants by asking them about sensitive aspects of their lives that could be distressing, potentially (re-)traumatising them and interfering with their ongoing treatment.

3.6.2 *Sampling*

A consensus sample was used, involving all the people referred to a specialist treatment service in a high-security hospital between 2005 and 2018. This sampling approach was helpful as it captured a whole population referred to this service and supported hypothesis generation based on a representative group referred for specialist personality disorder treatment. It also reduced some of the risks of selection bias associated with convenience sampling. However, as some of the pre-existing data relied on voluntary participation, such as diagnostic interviewing and psychological testing data, a selection bias remained highly probable. Voluntary response samples are unlikely to be representative of the overall population of forensic in-patients and overcontrolled patients. For instance, if someone had been admitted but declined to engage in

assessment, then no data beyond basic demographics would be available. If psychological test data were available, this may reflect a sample of participants who were more invested in treatment, were more compliant, or felt directly or indirectly mandated to take part in assessment. To overcome these potential biases – as much as practically possible, given the retrospective nature of the study and its reliance on pre-existing data – a missing value analysis was conducted to ensure that the final study samples represented the whole sample of individuals admitted for assessment and treatment; at least in terms of basic demographic information, which was available for almost the entire referral sample.

3.6.3 Participants

Data were collected routinely as part of clinical practice, and the researcher accessed data that were available between April 2016 and February 2018. The original evaluation database had a total of 126 male in-patients who were currently or had previously been detained under the UK Mental Health Act in a specialist personality disorder unit in a high-security psychiatric hospital. The mean age of the total sample ($N = 126$) at admission was 32 years ($SD = 8.78$, range 18–54 years). Most of the final sample were White British (91.3%, $n = 115$) and single (82.5%, $n = 104$), and most patients had no children 51.8% ($n = 44$). The average length of stay for the 126 in-patients in the high-security hospital was 66 months ($SD = 52.99$). All in-patients had been diagnosed with severe and enduring personality difficulties, and 93% ($n = 94$) of the 101 in-patients who had completed formal personality disorder assessment met diagnostic criteria (DSM-IV/ICD-10) for Antisocial or Dissocial Personality Disorder.

As all patients had been referred for admission to a high-security treatment facility, this already established that they had complex mental health issues and histories of offending that included serious violent and/or sexual offences. All but two in-patients had convictions prior to their original index offence. Low educational attainment was identified, with 89.1% holding no formal qualifications and no participant had a university qualification. Limited information was available on prior work history, but only 5.6% ($n=5$) of the sample had worked consistently since age 16 years.

The sample for each individual study was drawn from the pool of 126 cases, and samples across studies varied based on what information was available to answer the specific research question. Missing value analysis for the three empirical studies resulted in the following:

- Study 1: The final sample had $n = 91$, and the excluded missing values group consisted of $n = 35$. There were 32 (25.4%) cases that had no consistent conviction history information, and another three cases did not have their under- or overcontrolled classification recorded.
- Study 2: The final sample had $n = 93$, and the excluded missing values group consisted of $n = 33$. There were 21 (16.7%) cases that had their maltreatment and socio-developmental history information consistently missing, and another 12 cases did not have their under- or overcontrol classification recorded.
- Study 3: The final sample had $n = 90$, and the excluded missing values group consisted of $n = 36$, with all excluded cases systematically missing the critical clinical and psychological test data.

3.6.4 Sample Assignment: Over- and Undercontrolled Groups

The dependent variable in all three empirical studies was a dichotomous variable indicating whether an individual had been classified as over- or undercontrolled based on a two-stage process involving formal diagnosis and expert rating.

Stage 1: Lynch, (2018a) proposed that a personality disorder diagnosis can be used to facilitate identification of overcontrolled or undercontrolled styles of coping, with Cluster A and C associated with overcontrolled coping and Cluster B indicating undercontrolled coping. The IPDE assessment (Loranger, 1999) was completed by qualified psychologists who had completed specialist IPDE training. Based on Lynch's assumption, if the PD diagnosis/diagnoses were mostly Cluster A and C, then the case was classified as overcontrolled. Mostly Cluster B diagnoses meant that the case was classified as undercontrolled. A diagnosis of antisocial personality disorder (ASPD) was not used to aid classification, as it was present in most cases and added no discriminatory value in this forensic sample.

Stage 2: High comorbidity rates meant case classification based on diagnosis alone was not always possible, and misdiagnosis of Borderline Personality Disorder in overcontrolled clinical populations is common (see: Hempel et al., 2018b). To reduce this possibility, diagnoses were supplemented with expert panel ratings similar to Du Toit and Duckitt's (1990) design. An expert panel of two qualified psychologists and two senior nurses was convened. Each panel member had more than 10 years' experience of working with in-patients who had severe personality disorder, and all were trained in standard Dialectical Behaviour Therapy (DBT; Linehan, 2015) for undercontrolled disorders and RO-DBT (Lynch, 2018b) for overcontrolled disorders. Each expert panel member had been provided with definitions of overcontrol and undercontrol (Appendix D) and a list of participant names, and they were asked to independently rate the patient based on their clinical observations as either undercontrolled, overcontrolled, or unsure/insufficient knowledge. The raters did not have access to IPDE diagnostic-based classifications prior to completing their ratings. All ratings were collated from each panel member and a single consensus classification was generated on a majority basis. The intraclass correlation indicated that 92.4% of the variance was explained, suggesting excellent agreement between raters.

Final classification: Diagnostic classifications and expert panel members' classifications were then collated and compared.

Twenty participants could not be classified by the aforementioned method and were removed from the final sample, leaving a sample pool of $n = 106$. The IPDE clusters (A, B, and C) were used to allocate 45.3% of the sample to the overcontrolled ($n = 15$) and undercontrolled ($n = 33$) subgroups. Those cases ($n = 51$) that could not be classified using IPDE diagnosis due to either having an inconclusive profile or the data not being available were then assessed by an expert panel. Overall, the overcontrolled patients seemed much more difficult to accurately identify using personality disorder diagnostic profiling than undercontrolled in-patients, and sample assignment for this group relied heavily on expert panel ratings.

3.6.5 Scoping Exercise for Pre-Existing Healthcare Data

Existing healthcare records represent data collected during routine delivery of healthcare, and they are sometimes referred to as routinely collected clinical data. Scientific utilisation of

existing healthcare records is a well-tested method of clinical research, especially in studies aimed at improving clinical care, optimising clinical services, or testing the feasibility of new clinical initiatives (Cowie et al., 2017; Sammani et al., 2019). Global digitisation of existing healthcare records makes these data much easier to access and has prompted greater consideration of them for clinical research. For instance, Cowie et al. (2017) wrote that electronic healthcare records (EHR) “may potentially be used to assess study feasibility, facilitate patient recruitment, streamline data collection, or conduct entirely EHR-based observational, embedded pragmatic, or post-marketing randomised registry studies, or comparative effectiveness studies” (p. 2).

Prior to proceeding with the three empirical studies, a scoping exercise of all available or potentially available sources of routinely collected clinical data was conducted at the host organisation. This established the type of data available and its fitness for use, such as its quality, validation, and completeness regarding the current research studies. In the host setting, a range of routinely collected clinical data were available. This included handwritten clinical progress notes (up until 2004/2005), progress notes on the electronic healthcare records (from 2005), professional reports, structured behavioural observations, psychological test data, official crime data, and diagnostic interview results. There were also existing service evaluation databases (in Excel or IBM SPSS Statistics 23 format) with a vast range of variables, including information on demographics, treatment history, forensic history, information about index offence, psychological test scores, diagnostic interview results, and risk assessment information. Each of these sources was considered for its potential fitness for use in the current research studies.

3.6.6 *Clinical Records*

The clinical records in the host institution were initially physical records involving multiple files and handwritten clinical progress notes. Using these physical clinical records was immediately ruled out, as they contained too much obsolete, incomplete, and very low-quality information to be of use in the current studies. They also contained handwritten notes, which are renowned for being difficult to read, resulting in missing or partial data capture (Rodríguez-Vera et al., 2002; Panigrahi & Cunningham, 2003). Digitisation in 2004 created an electronic

healthcare record, providing a potential source of data that was more standardised and overcame the problems with handwritten notes.

The electronic healthcare records hold general demographic information, daily unstructured clinical observations (progress notes), the outcomes of physical examinations, medications, and other patient-centred data, e.g., some clinical forensic reports. The scoping review revealed that even after digitisation, this centralised record-keeping system only reflected a single component of a patient's care record. Specific pieces of information critical to the studies reported in this thesis were either not consistently recorded or not easily retrievable from the electronic record. Namely, official crime data, professional reports, psychological test data, and diagnostic interview results. Access to other healthcare records would therefore be needed to ensure complete data capture. The scoping review confirmed that identification and matching of patient data across sources could be easily facilitated, as the research was being conducted on a small self-contained unit and there was a consistency of recording mechanisms and a single administrator who was familiar with co-ordinating data retrieval across the Unit's various data sources.

Another major concern was the quality and validation of data on the electronic healthcare records: were the data of a sufficient standard for research, and could one reasonably anticipate that its quality was such that it would not negatively impact the validity of research findings (Weiner & Embi, 2009; Weiskopf & Weng, 2013)? Heavy workloads, multiple contributors, and regular staff rotation have been found to negatively impact the quality and accuracy of healthcare records (Brennan et al., 2012; Hersh et al., 2013; Ni et al., 2019). These contextual and staffing variables were present at the hosting site, and clinical progress notes logged on the electronic healthcare record were highly susceptible to these contextual pressures.

Clinical progress notes are routine, unstructured clinical observations completed by multiple people, often from different disciplines. McNally et al. (2010) previously examined progress notes at the hosting site and revealed problems with their quality, consistency, and level of clinical detail. It was also reasonable to suppose that the dominant thesis that low self-control contributes to offending and mental ill-health would bias staff attention towards psychological phenomena reflective of undercontrol as opposed to overcontrol. The existing database of electronic progress notes also lacked retrieval capabilities, which prevented systematic

searching in line with the research questions. Additionally, inconsistent terminology across the array of staff inputting data prevented use of the basic search functions integral to the database. Overall, the unstructured progress notes, whilst providing a longitudinal assessment of a person's functioning, were not deemed fit for use in these studies. Their considerable heterogeneity, lack of detail, and potential inaccuracies, along with biases associated with contextual and staffing issues, concept blindness, recording methods, and the limited capabilities of the electronic system to systematically search existing data, presented threats to scientific integrity that were too great.

3.6.7 Professional Reports

Professional reports are formal documents that share specific clinical and forensic information written by different professionals working as part of the patient's multidisciplinary clinical team. The audiences for these professional reports are the service user, other professionals, and quasi-legal/legal settings, such as Mental Health Review Tribunals, Parole Boards, and criminal courts. The scoping review identified a range of professional reports written by specific disciplines on the electronic healthcare record or in the physical single healthcare case file. In this specific research context, report content varied by professional discipline. Psychologists' reports focused on sharing assessment or treatment progress information. Social workers' reports typically included a detailed developmental and social history, which was updated annually. Nursing reports were annual progress reports based on summaries of nursing progress notes recorded over the assessment time periods. Medical reports focused on vital physical health statistics, physical health complaints, and medication, and they occasionally included psychiatric diagnoses.

The scoping exercise, along with the author's experience of having read many of these reports in a clinical capacity, indicated that heterogeneity in the content and quality of professional reports across and within disciplines meant that these were probably not a good source of data. Social workers' reports were considered an exception, as use of a standard Social History reporting template and the fact that many of these reports had either been completed by a single author or someone trained by that author provided a reasonable amount of consistency. Social workers' reports completed after admission were the most comprehensive, and they typically included a complete forensic history based on official convictions recorded in the Police

National Computer (PNC) record. They also included a detailed developmental history, with service-user accounts often triangulated with third-party accounts from people such as parents, previous carers, school reports, and social-services records. Multiple-informant triangulation is a common method of data verification in forensic services, especially in high-stakes situations, which increase the likelihood of malingering, deception, and socially desirable responding (Denzin, 2012; Feuerstein et al., 2005).

Extracting the unstructured free text from social workers' reports and transforming it into research data was an important consideration during the scoping review. Cole et al. (2016) recommend collaboration as early as possible between the researcher and the staff extracting the data, with a view to ensuring that data elicitation relies as much as possible on the principles of scientific rigour. This collaborative process also helps the researcher establish greater insight into how the pre-existing data have been collected and obtain information about its completeness, reliability, and validity.

A lack of standardisation in the extraction procedure and coding process for the data in professional reports would seriously undermine the quality of the data and the validity of potential research outputs (Cole et al., 2016). Collaboration was sought to see if there was a way these data could be systematically extracted from professional reports, and the author was able to work with the individuals gathering and inputting the data onto service evaluation databases. This was more fortuitous than planned, as Radically Open Dialectical Behaviour Therapy (RO-DBT) – a new treatment for overcontrol – was being implemented at the Unit and a new treatment-specific service evaluation database was under construction.

The author worked closely with the clinicians, database administrator, and Unit research assistants in the conception and development of a robust RO-DBT treatment database. To avoid misclassification bias and random error, the author shared the findings from the scoping exercise with the RO-DBT clinical team and research assistants, working with them to identify the most scientifically robust data and to develop standardised data-extraction forms for them to use. Training in the use of these extraction forms was provided to the research assistants by the author, along with regular supervision to discuss anomalies or areas of dispute. Once the research assistants were competent in using the data-extraction forms, they used these to systematically elicit information from professional reports and official crime data. Some of the

information on the RO-DBT database was aligned – or could be aligned via data transformation – with the research questions.

3.6.8 Official Crime Data

Given the ethical concerns and the threats to reliability and validity of obtaining forensic data drawn directly from participants, pre-existing official crime data available on the Unit were considered for use (Velsor & Rogers, 2019). The physical healthcare record often contained copies of trial judge’s reports, sometimes victims’ statements, professionals’ accounts of the person’s offending history, and a previous conviction list drawn from the PNC. The scoping exercise revealed that the only standardised and reliable source of pre-existing conviction information was the PNC record, and this was also consistently available. Trial judges’ reports were considered a useful source of information about the index offence, but these were often only available for those serving a life sentence, and even this was inconsistent.

Official crime data have well-documented measurement problems (Buonanno, Drago, Galbiati, & Vertova, 2018; MacDonald, 2002). In summary, PNC pre-conviction lists generated in England and Wales only record offences that a person has been cautioned for or convicted of. It is not unusual, however, for original charges to be dropped due to insufficient evidence and for only some offences to be pursued for conviction in the case of multiple offences being committed. Lesser charges may also have been pursued as they were easier to determine. Additionally, many crimes go unreported to the police, and it is generally accepted that individuals only get convicted for a proportion of all the offences they have committed (Buonanno et al., 2018). The official crime data were therefore selected for use with the caveat that the figures are a guide rather than a true and error-free account of an individual’s offending history. Nonetheless, these official data are likely more reliable and complete than self-report information and provide a good proxy measure of the breadth, duration, and severity of an individual’s forensic history. Relying on the official list of previous convictions also reduces error and interpretation bias when extracting these data. The sentencing date and the legal classification noted on the PNC were directly extracted verbatim onto the service evaluation database. For the purposes of the study in Chapter 5, these data were transformed to suit specific research questions, and this is described below.

3.6.9 Psychological Instruments

The document *Psychological testing: A test user's guide* (BPS, 2017) outlines that a psychologist should look out for tests “supported by evidence of reliability and validity for their intended purpose. Evidence should be provided to support the inferences that may be drawn from the scores on the test” (p. 8). The scoping exercise revealed that structured behavioural observations, diagnostic interview results, and psychological tests were routinely collected at various stages during each service user’s stay in hospital, and these data may be useful to address the research questions. The results of the psychological instruments were recorded on the pre-existing service evaluation database, and the following were considered when selecting variables for this research.

3.6.9a Test Purpose

The purpose of the test and how it was originally intended to be used were considered, as clinical and diagnostic usage requires higher standards of accuracy, particularly when the stakes are high (i.e., involuntary detainment). Three types of clinical and diagnostic psychological measures were identified as potential sources of data for these studies.

3.6.9b Diagnostic Interviews

Two diagnostic interview schedules that aligned with the research questions were chosen. The IPDE (Loranger et al., 1997) and the Psychopathy Checklist-Revised (PCL-R; Hare, 2003) are highly regarded structured diagnostic interviews. They have thorough test manuals, clear administration and scoring procedures, and both have undergone rigorous development and validation processes.

The IPDE is the only personality disorder diagnostic interview that is based on worldwide field trials, and it is one of the main diagnostic tools recommended in NICE quality standard guidelines for detecting personality disorders (NICE, 2015, QS88). The IPDE is used extensively worldwide in mental health practice (Álvaro-Brun & Vegue-González, 2008; Haider et al., 2014; Loranger, 1997), and it is attached to both the ICD-10 (International Classification of Diseases, 10th edition) and DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, 4th edition) classification systems. The PCL-R (Hare, 2003) is a 20-item

symptom-construct rating scale designed to assess psychopathic personality functioning in forensic populations. It provides complete coverage of Hare's theory of psychopathy and is based on an array of articles, reports, presentations, and dissertations published since the theory's inception in 1991 (DeMatteo et al., 2020; Hare et al., 2018; Olver et al., 2020).

The main approach to data collection for both diagnostic tools was a semi-structured interview combined with the existing healthcare records outlined above. Semi-structured interviews often rely on an interview schedule with a list of pre-determined questions, and they are commonly used for data collection in research and clinical work. Whilst the level of flexibility in administration varies between semi-structured interviews, they are often preferred to structured interviews as they do not restrict the interviewer from following up on points raised by the participant or probing to gain further information. The open-ended question style in semi-structured interviews also allows interviewees the opportunity to discuss anything they deem to be important or relevant from their perspective (Howitt, 2018). The interview style is also more conversational in approach, with a view to encouraging a deep, unrestricted discussion and giving participants the opportunity to share their experiences (Bryman, 2016).

The IPDE interview schedule is highly structured, and the manual permits some flexibility in administration. Each of the IPDE questions corresponds directly to a specific personality diagnostic criterion identified in ICD-10 or DSM-IV, and the interview schedule is arranged in sections (e.g., Background Information, Work, Self, Interpersonal Relationships). Open-ended inquiries at the beginning of each section help facilitate a smooth transition between sections and allow the interviewee to free-associate about the personality domain under examination. The interviewer is required to ask the questions in the interview schedule in the provided order, and there are recommended supplementary questions to probe for further information.

The PCL-R interview schedule is akin to a standard clinical interview eliciting background developmental, clinical, relationship, and forensic information, as well as assessing interviewee style throughout the interview. Flexible delivery, questioning, and wording are permissible when administering the PCL-R semi-structured interview, and idiographic supplementary questions can be added to support data elicitation. The PCL-R manual, unlike the IPDE manual, provides clear guidance on how to triangulate different sources of information, with healthcare

record information and third-party sources weighted more heavily than clinical interview data as it is thought to be more reliable (Hare, 2003).

3.6.9c Psychological Tests

Results from the following psychological tests were selected as possible sources of data for the studies. The scoping exercise revealed that a multitude of tests had been administered, although only a few tests were consistently administered to all patients. It was decided to concentrate on testing at admission, as this avoided practice effects and treatment impacting test results, and the point of admission would be when decisions were made about personality-based treatment pathways. Admission would also be the time that diagnostic interviews and structural behavioural observations were conducted, hence all the data came from a similar time period.

The numerical results from the following measures were selected for extraction from the pre-existing database:

- State Trait Anger Expression Inventory-2 (STAXI-2; Spielberger, 1999);
- Chart of Interpersonal Reactions in Closed Living Environments (CIRCLE; Blackburn & Renwick, 1996);
- Urgency, Perseverance, Premeditation, and Sensation Seeking Impulsive Behaviour Scale (UPPS; Whiteside & Lynam, 2001);
- Personality Assessment Inventory (PAI; Morey, 1991).

These structured psychological measures are all tests of typical behaviour and are used to elicit information about what people would commonly think, feel, or do in a given situation. The structured behavioural observations elicited using the CIRCLE provided systematic information on nursing staff's observations of the service user's everyday interpersonal functioning. These measures are described in detail in the methods section of Study 2 (Chapter 6), and PAI subscales were selected in line with the research hypotheses in studies 1 (Chapter 5) and 3 (Chapter 7).

3.6.9d Instrument Manuals, Administration, and Scoring

The PCL-R, IPDE, PAI and STAXI-2 have comprehensive test manuals, and the CIRCLE and UPPS rely on detailed validation papers published in reputable journals. These manuals/validation papers were reviewed prior to deciding on which psychological test variables to extract from the pre-existing database. The test manuals/validation papers describe the history of the test, relevant theory supporting it, the steps in its construction, clear evidence of its psychometric properties, and supporting research. The scoping exercise confirmed that all the selected tests had an established history of being used with forensic service users, and the CIRCLE had been specifically developed for use in high-security forensic hospitals. The test content was reviewed to establish familiarity, and the test manual was consulted to gain an appreciation of the administration, test validation, and scoring processes.

If informed consent was provided, the diagnostic interviews, behavioural observations, and psychological tests were routinely conducted as part of the initial assessment process in the host organisation. The tests selected were all administered individually by a trained clinician, as recommended in the test manual/validation paper. Individual administration is considered best practice; it is thought to improve data quality because the trained professional administering the test can make judgments during the testing that affect the administration, scoring, and other observations related to the test. It was also confirmed that psychological testing and interviewing took place in a quiet confidential interview room in the patient's ward area, and this administration venue was standard across all wards on the Unit.

The Unit's policy for administration of PCL-R diagnostic interviews stipulated that these were completed by a qualified psychologist or psychiatrist. The IPDE diagnostic interviews were administered by a psychologist, psychiatrist, or specialist trained nurse who had undergone additional training and supervision in IPDE assessment. The IPDE administrator can choose their preferred diagnostic system, and the host organisation routinely administered the DSM version to all patients during the assessment period, if informed consent was provided. No other information about administration processes was verifiable, and it can only be anticipated that instruments were administered using the standardised procedures outlined in the test manuals/validation papers.

It was confirmed that diagnostic interviews and psychological tests were objectively scored using the standardised templates provided within the test manual or validation paper. The PAI and STAXI-2 were scored and interpreted using test-specific computer software, and the UPPS, CIRCLE, IPDE, and PCL-R were hand-scored by the test/interview administrator. The PCL-R and STAXI-2 have rating booklets and QuikScore forms, while the IPDE has a structured scoring booklet. The CIRCLE and UPPS were hand-scored using scoring guidelines from the validation papers. Systematic scoring protocols, such as standardised rating booklets, computerised scoring, and QuikScore forms are more reliable and reduce the chance of human error in comparison to hand-scoring (Simon et al., 2002).

The norms for the PAI, STAXI-2, and UPPS are based on the general population, and CIRCLE and PCL-R have forensic in-patient norms. Standardised scoring enables the clinician and researcher to make meaningful interpretations of the obtained test scores, and a review of the test manuals revealed that the PCL-R, PAI, UPPS, and STAXI-2 all have extensive normative data against which to compare a test-taker's performance. The raw data in the PAI and STAXI-2 were converted to standard *T*-scores by the computerised scoring process and compared with general population norms. Only the PAI and STAXI-2 *T*-scores were available on the pre-existing service evaluation database. The UPPS total scores and mean of the available items were on the database, and PCL-R raw data were available, but the database did not include information on percentile rank ratings. The STAXI-2, UPPS, PAI, CIRCLE, and PCL-R results were recorded as numerical scores on the pre-existing service evaluation dataset. The scoping exercise revealed that considerable PCL-R and UPPS data were missing. In some instances, PCL-R Factor 1 and Factor 2 scores were available, but more commonly only the PCL-R Total scores were recorded. After 2013, PCL-R data were rare, as practice changes meant that these stopped being collected routinely on the Unit. Conversely, UPPS data only became available in 2008, as it replaced the existing impulsivity measure. The scoping exercise revealed that there was still a reasonable amount of UPPS and PCL-R data available, and there were no other alternative reliable and valid measures of these constructs on the database.

The IPDE scoring process can produce dimensional and categorical personality disorder diagnosis data; however, only categorical data were extracted, as the scoping exercise revealed that dimensional scores were not consistently available. The IPDE results were recorded in text

format, with a definite, probable, or negative descriptor for each of the 11 DSM personality disorder diagnoses. The IPDE variable had to be transformed to permit analysis.

3.6.9e Psychometric Properties

“*Psychometrics* is the scientific study—including the development, interpretation, and evaluation—of psychological tests and measures used to assess variability in behaviour and link such variability to psychological phenomena.” (Committee on Psychological Testing, 2015, p. 95). In evaluating psychometric properties and selecting an appropriate psychological measure, BPS guidelines recommend that the reliability, validity, and fairness of the measurement are considered.

3.6.9f Validity

Validity is at the core of test development, and fundamentally this refers to whether a test or measurement instrument actually measures what it purports to measure. Validation is an ongoing process, and a scoping review of test materials used in this thesis revealed various methods or approaches have been developed and employed.

Construct validity is generally agreed by many measurement experts to be an umbrella term for the unifying concept that covers all thinking about validity (Colliver et al., 2012; Kane, 2012). What constitutes construct validity has, however, been keenly debated, and this lack of consensus is reflected in test material. Cronbach and Meehl’s (1955) original model of construct validity sees a bidirectional relationship between test validity and scientific theory. Describing Cronbach and Meehl’s thinking, Colliver et al. (2012) state that

a construct is a postulated or theoretical concept that is defined by its position in a [nomological] network of other constructs. The relationships among the constructs in the network are defined by scientific laws that link the constructs and form the network.
(p. 367)

Construct validity is then “established by any evidence that supports the nomological network of constructs and laws that contain the construct” (Colliver, 2012, p.367). Cronbach and Meehl’s (1955) definition of construct validity shifts the focus from the issue of whether a test

measures what it purports to measure onto the relationship(s) between the construct and other constructs as specified by the nomological network. The validity of the construct and measurement are therefore determined by ongoing theory and measurement testing, as well as validation processes supporting the entire nomological network. This approach to construct validity is, however, problematic as nomological networks have yet to be adequately verified in psychology, and at best psychologists are often working with crude and tentative formulations about a network of connections.

A less stringent approach to construct validity proposes establishing validity with interpretation and argument (Shaw & Crisp, 2011; Messick, 1989; Kane, 2012). “Validity is an integrated evaluative judgment of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of inferences and actions based on test scores and other modes of assessment.” (Messick, 1989, p. 13). An interpretive argument about construct validity dictates that the test or the scores derived from the measure are not valid, rather validation involves the evaluation of the plausibility of its inferences and the uses of measurement. “Evidence should be sought from several different sources to support any given interpretation, and strong evidence from one source does not obviate the need to seek evidence from other sources” (Cook & Beckman, 2006, p. 10). This approach to construct validity is criticised for being too general and lacking in the scientific rigour and theoretical underpinnings of Cronbach and Meehl’s approach (Colliver et al., 2012).

Borsboom et al.’s (2009) review of construct validity concluded that:

this is the end of construct validity ... psychology simply had no nomological networks of the sort positivism required in 1955, neither vague nor clear ones, just as it has none today. For this reason, the idea of construct validity was born dead. (p. 144)

They argue that there is no point trying to define and evaluate construct validity as it does not exist, and instead offer an attribute-based view of measurement. Borsboom et al. (2004) define measurement in terms of a *causal* relationship between variation in the attribute itself and variation in the measurement outcome or test score. They write, “somewhere in the chain of events that occurs between item administration and item response, the measured attribute must play a causal role in determining what value the measurement outcomes will take” (p. 1062).

This “realist” view of measurement makes validity into an all-or-nothing concept: the instrument either measures the attribute (and is valid) or it does not (and is not valid). A major criticism of this attribute approach to measurement is that abstract theoretical constructs like those in psychology cannot convincingly be explicated from theory, and it is not clear that variation in their respective measurement instruments is caused by variation in attributes (Lurie et al., 2011).

Upon consulting the test manuals and validation papers, it can be seen that little attention has been given to the construct validity arguments outlined above. Instead, practitioner guidelines and test manuals report multiple “types” of validity, notably: construct, content, criterion (predictive and concurrent), divergent, convergent, and face validity. Whether this means a measure is truly valid is debatable, but it is currently the expected practice that these “guesstimates” of validity are made available to test administrators so they can judge whether a test is fit for use.

Assuming that the concept of construct validity exists, content and criterion validity are considered critical sources of evidence. Construct validity is thought to involve logical and statistical verification of whether the construct measured by the test is required for success on the criterion of interest (criterion-related validity), and the specific test under consideration is a good measure of the theoretical construct or trait (content validity). The construct- and test-validation processes presented in the test manuals and validation papers offer an overview of the steps taken to ensure that the items represent the construct, the process for developing and selecting items, the wording of individual items, format, and the qualifications of item writers and reviewers.

Validity evaluation of a test is, however, an ongoing cycle of testing and revision, and a literature search was conducted to identify any additional construct and validation work completed since the original manual/validation papers were produced. This review of manuals and extant literature revealed that all the selected measures benefitted greatly from multiple sources of evidence supporting validity. As expected, information about test-development processes and validity was more comprehensive for the PCL-R and IPDE, as these diagnostic interviews require a higher degree of confidence in the accuracy of interpretations than psychological tests used to guide clinical formulation.

The relation to other variables was also assessed for some psychological tests, in particular how accurately the test scores predict criterion performance, the degree a test's score correlates with other measurable, reliable, and relevant variables thought to measure the same (convergent validity) or dissimilar (divergent validity) construct. The review of manuals and extant literature revealed that all the selected measures were fit for use in the current research context, and the ways in which individual scales were mapped onto individual research hypotheses are outlined in the individual empirical studies. The entire test results in numerical or text format were selected for extraction from the pre-existing service evaluation databases.

3.6.9g *Reliability*

Classical test theory states that a test is reliable to the degree that it is free from error and provides information about examinees' "true" test scores, and the degree that it provides repeatable, consistent results. Essentially, a reliable test can be relied upon to consistently measure the same trait or variable each time it is used. Obtained test scores are, however, only estimates of the real score and always include some error elements. Being able to quantify these error elements is important; however, only the PCL-R cites a standard error of measurement, and this given as ± 2 for PCL-R assessments that are co-rated and ± 3 for PCL-R assessments administered by one person.

Procedurally, there are many ways in which reliability may be estimated, and the test publisher may also provide coefficients for all the different types of reliability or only certain ones. The test publisher's manuals were closely scrutinised to verify the reliability of each psychological test, and factors that may reduce score variability or increase measurement error were also considered, as these are known to reduce the reliability coefficient. For instance, variability in groups tested, length of test, test difficulty, and use of forced-choice responses all affect the perceived reliability of a test (Shaughnessy et al., 2014). Certain types of reliability are more important for some purposes than others, and for these studies, threats caused by alternate-form reliability were less of a concern. None of the measures used had parallel or alternate forms, and using admission data meant it was likely this was the first time that participants were tested using the selected measures.

Test–retest reliability is an index of test stability, and this is evaluated by administering the same test instrument to the same people at two points in time (Ponterotto, 1996). Classical and modern test theory states that “few, if any, standards exist for judging the minimum acceptable value for a test–retest reliability estimate” (Crocker & Algina, 1986, p. 133). A rule of thumb cited as evidence of acceptable test-retest reliability is a range 0.7-0.9, but this assumes a lot about the context in which the test-retest reliability coefficient was calculated. For instance, reliability coefficients can be expected to decrease as the length of the interval increases, e.g., maturation of the test takers and events they have experienced (learning) may influence the results. Conversely, test–retest coefficients can be inflated if the interval is too short (e.g., memory and practice may influence the test takers’ results). The more time that elapses between sessions, the more likely reliability coefficients are to be low, and a 2-3week time period is considered preferable because this period is long enough that test takers are unlikely to remember specific items from the previous administration, but it is not long enough for significant maturation to have occurred (Salvia & Ysseldyke, 2001). The test-retest reliability was verified for all measures used in these studies and cited in their respective methods sections.

Inter-rater reliability considers the consistency in test scores amongst independent raters, and this is particularly important when there is an element of subjectivity in scoring tests or rating behaviours (Lyman, 1998). Subjective evaluation introduces more variation in how items are rated amongst the raters, and inter-rater reliability is important to assess whether two or more raters will draw similar conclusions from the same information. Ponterotto (1996, p. 80) states that there is no definitive marker for an acceptable level of inter-rater reliability, and this will vary depending on the purpose of the assessment. A rule of thumb would be Cohen’s (1960) original article, which suggests kappa values ≤ 0 indicate no agreement, .01–.20 none to slight, .21–.40 fair, .41–.60 moderate, .61–.80 substantial, and .81–1.00 almost perfect agreement. However, the purpose of the assessment is important, as lower levels (≥ 0.7) are generally accepted for research purposes, whereas psychological evaluations with life-altering consequences, such as the PCL-R and IPDE assessments, should have higher levels of inter-rater reliability (≥ 0.8).

Steps can be taken to minimise the error variance and increase reliability, and specialist training and regular co-rating exercises are ways to reduce error, along with detailed test manuals. The PCL-R scores were individually administered, but some were also co-rated; however, there was no way of knowing how each individual test on the database was administered. There was also no inter-rater reliability data available for IPDE and PCL-R, so the consistency in diagnostic process between clinicians in this unit is unknown. Training in the IPDE and PCL-R was, however, received by all clinicians administering these measures, and only qualified state-registered psychologists and medical professionals administered the measures for diagnostic purposes. All members of staff who completed the IPDE also received specialist training from an international expert who was part of the IPDE development team. This training process would likely increase inter-rater reliability, but this was not statistically verifiable. Studies examining the reliability of the PCL-R and IPDE in other settings have confirmed acceptable levels of inter-rater reliability, and these are cited in the methods sections of the relevant studies. The inter-rater reliabilities of expert panel members' ratings were calculated and are cited in the relevant empirical chapters.

Internal consistency refers to the consistency of different items within the same test to measure the same thing as intended (homogeneity) and is used to estimate the generalisability of results to different test items. Fleiss (1981) offered guidelines for interpreting internal consistency reliability coefficients, with $<.40$ being poor, $.40-.59$ fair, $.60-.74$ good, and $.75-1.00$ considered excellent. This type of reliability is important for tests that are not timed and are not completed under time pressure (Lyman, 1998), but the guidelines should not be considered absolute markers, as several things can affect the reliability coefficient. For instance, a test with many items that assess a construct or trait is more reliable than one with only a few items, unless the test is so long as to induce fatigue in the test taker. In this work, the internal consistency of each measure could not be calculated for the specific population, as only total scores and subscale scores were available on the database. Existing research has, however, confirmed internal consistency with similar populations, and this is cited in the relevant methods sections.

3.6.9h Fairness, bias, and cultural sensitivity

Tests were intended to discriminate between people, but these differences should be “real”, and it is imperative that they are fair and that no individual or group is disadvantaged in the testing process based on factors unrelated to the typical behaviour being measured by the test (Suzuki et al., 2014). Test manuals and validation papers were reviewed, and they outlined what methods had been used to examine potential bias in test construction. The STAXI-2 and PCL-R manuals also reported additional studies produced in the time period between the original test construction and the revised test publication. A literature search was conducted on each test to identify additional research, and it was concluded from the research commentary reviewed that the selected tests met appropriate standards for bias, fairness, and cultural sensitivity, and that they were valid for application in the current studies.

The Overcontrolled Hostility Scale (OHS; Megargee et al., 1967) and the Assessing Styles of Coping: Word-Pair Checklist (Lynch, 2018) were considered for primary data collection as they would have simplified assignment of comparison samples. The OHS has been used extensively in prior research into overcontrol in forensic samples; however, this was ruled out as it has poor construct validity in regard to overcontrol, cannot identify the undercontrolled comparison group, and has consistently been found to overestimate overcontrolled hostility in African American samples (Hutton et al., 1992). Lynch’s (2018a) word-pairs test was also ruled out, as it was a pilot measure and has yet to demonstrate suitable levels of reliability and validity. There was also no examination of fairness, bias, or cultural sensitivity, and a review of the item content revealed that a high level of literacy was needed to understand some of the words.

3.6.10 Data-Extraction Methods

The author, in a clinical capacity, was involved in the initial development and piloting of the data-extraction tool used to generate some of the information on the pre-existing service database. This data-extraction tool is called the “Background Forensic Information” (BFI) form and was originally completed by a trained graduate psychological assistant and used to populate the original service evaluation database. Using this BFI form as a template, the author worked in collaboration with the RO-DBT clinicians and Unit research assistants to develop a bespoke

extraction form for populating the RO-DBT treatment database. This RO-DBT bespoke extraction form and coding book (see Appendix E) had three sections, and these are outlined below.

Section 1: Demographic and Background Information included information such as age at admission, date of admission, discharge date, ethnicity, nationality, education, marital status, and number of children. This information could be drawn directly from the main service evaluation database, and the variables selected are outlined in each empirical study (Appendix E, 9.5.1).

Section 2: Forensic Information included a full summary of each service user's forensic history and some contextual and victim variables associated with their index offence. The extraction form and coding manual (Appendix E, 9.5.2) outlined what data were extracted and where that forensic information should be drawn from. Conviction history data in the coding manual stated it should be taken from the PNC record. In the absence of the original PNC information, the social worker's assessment was recommended, as this typically outlines a full forensic history drawn from a PNC record. If neither record was available, then the coding manual stated that the forensic section should be omitted, and a referral should be made to the assessment and treatment administrator to request the PNC record from the social worker manager. Extractors were also instructed to check the social worker's report for any convictions received whilst resident in an institution, as these may have occurred after the PNC record was extracted. The extractor then placed the information on the RO-DBT service evaluation database, noting the date of each sentencing occasion and the actual legal descriptor for every conviction.

These data provided a full record of a person's official convictions, but it had to be transformed to permit analysis in the current study. Data transformation was conducted using handwritten tally sheets, which recoded offences into one of the 11 groups outlined in the official offence classification list (OCI, 2019) used for counting crime in the UK. There was potential for human error in the hand-tallying process, but there was no electronic way to recalculate this given how the original data were inputted. Safeguards were put in place, which involved getting two raters to count the total number of offences recorded on the anonymised dataset and then creating a sum of all the re-categorised offences to ensure these matched. Contextual and victim variables for the original violent or sexual index offence(s) were drawn directly from the main

pre-existing service evaluation database. The contextual and victim information was recorded as categorical variables, rated as a yes/no. For example, victim 17 years or under, victim 18 years or over, victim known, victim stranger, victim male, severe bruising, death, weapon used, and so on. Additional variables were calculated from the data available, such as age at first conviction, age at first violent conviction, and lethality of index offence were calculated from the raw data using SPSS 23. Study 1 (Chapter 5) drew heavily on this information.

Section 3: Socio-Developmental Information included information on “educational background”, “family history”, “relationship history”, “employment history” and “childhood maltreatment”. The extraction form outlined what data were extracted, and the variables selected were outlined in each empirical study. Information linked to education, family, work and peer relationships was drawn directly from the centralised service evaluation database, and no definitions or coding rules were available for these specific variables. The coding manual cited the Modified Maltreatment Classification System (MMCS) as the basis for definitions of child maltreatment and adverse childhood experiences (Manly, 2005; English et al., 2002). The MMCS is a well-recognised and standardised tool that has previously been used for case-record analysis (Huffhines et al., 2016). The MMCS coder was asked to read the social worker’s report and determine whether an event or episode specified in the professional report reflected any of the broad categories of maltreatment defined in the MMCS, that is, physical abuse, sexual abuse, physical neglect (failure to provide food, shelter, clothing, hygiene, or medical care), emotional/psychological maltreatment, moral–legal maltreatment, and educational maltreatment (Barnett et al., 1993; English & the LONGSCAN Investigators, 1997).

A chronic parent invalidation variable was added to the standard MMCS variables in the codebook. In the context of overcontrol, chronic parental invalidation is characterised by parental practices that reinforce habitual overcontrolled coping, such as parental overprotection, parental modelling of persistent overcontrolled coping, and persistent parental messaging emphasising the need to act calm, be in control, follow rules, be correct, hide emotions, be the best, and compare self with others to confirm worth and social acceptability (Lynch, 2018a). It may also include punishment for playful spontaneity, age-appropriate requests for nurturance, and normal displays of emotions or mistakes. The coder rated each type of maltreatment as present or absent, their age(s) of onset, chronicity of abuse, relationship

of victim to perpetrator, and the MMCS severity rating of the abuse. This information was recorded on the RO-DBT service evaluation database. During the initial stages of developing the RO-DBT database, the author trained the research assistants who would be extracting the data, and weekly supervision sessions were arranged in the initial stages of piloting to ensure adequate competency. Once data extraction commenced, there were regular meetings with extractors to help them resolve disputes and review coding rules. Study 3 in Chapter 7 drew heavily on these data.

3.6.11 Sources of Information and Data-Collection Procedure

This study is based on analysis of secondary data drawn from pre-existing clinical databases containing routinely collected clinical and forensic information. Pre-existing data were used to prevent any unnecessary harm being caused to participants by asking about aspects of their lives that could be distressing and interfere with their ongoing treatment. Information gleaned from the pre-existing treatment databases was provided in an anonymised format with only selected variables relevant to the current study obtained. Additional information about missing data were requested from the Unit's Assessment and Treatment Co-ordinator at the point of data cleaning.

3.6.12 Data Analysis

The preceding sections outline how the secondary data were identified and the rationale for its use. It was established, as is often the case with pre-existing data, that much of this needed to be transformed prior to being re-analysed in this research context. The dataset was obtained in an Excel format, and it was then converted to SPSS 23 and R for the statistical analyses. Due to limitations in the data, such as missing values, the dataset was subsequently cleaned. Where possible, qualitative responses to questions were converted to numerical data to aid statistical analysis.

During the data-cleaning phase, the dataset was checked for input errors, numerical errors, random responding, missing data, normality, and outliers. Missing data is a recognised problem when using retrospective and pre-existing data, and this was present in the acquired database. The scoping exercise revealed that some information was initially consistently recorded but

then stopped (e.g., PCL-R), and some variables were added later but were then consistently recorded (e.g., UPPS). This reflected changes in service assessment processes over time, resulting in missing data. This was managed in each study by conducting a missing value analysis, which compared the final study sample against the total sample on key demographic characteristics that were present for the total sample. Missing data during statistical analysis were managed on a case-by-case basis and were excluded pairwise. Initial data cleaning was conducted for each study, and the number of cases removed from the original sample ($N = 126$) was specified, along with a missing case analysis and reasons for removal. After data cleaning, a data-analytic plan was developed for each study, and these are outlined in the methods section of each empirical study.

3.6.13 Missing Value Analysis

One hundred and twenty-six ($N = 126$) potential cases were identified for analysis. Initially, data cleaning revealed that 20 cases (15.9%) had no final sample classification as over- or undercontrolled. These cases were removed, leaving 106 cases. A further six cases were removed as they did not have sufficient data on any of the three key areas under investigation: conviction history, socio-developmental and maltreatment history, and clinical/psychological tests. A missing value analysis was conducted comparing the missing values group ($n = 26$) with the final sample ($n = 100$). Chi-square and Mann–Whitney tests revealed no statistical differences between the final sample and the missing values group on most of the demographic, clinical, and forensic characteristics under consideration.

There was no statistically significant difference between the missing values group and the final sample for: age at admission; final over- or undercontrolled sample classification; nationality; ethnic group; marital status; definite ASPD diagnosis; index offence classification; type of sentence; ages at first conviction for violent, sexual, or any crime; age at index offence; or the total number of convictions and sentencing dates. Those in the final sample were statistically more likely to stay for treatment than the missing values group $\chi^2(1, N = 126) = 16.56, p < .001$, and concomitantly the average length of stay in the secure hospital was significantly lower for the missing values group, at 31.2 months ($SD = 33.9$) compared with 75.1 months ($SD = 53.3$) for the final sample. This difference was examined using a Mann–Whitney U test and was found to be statistically significant $U = 519, z = -4.304, p < .001$. The reasons underpinning

this lack of involvement in hospital treatment is unknown, and perhaps the shorter duration of stay accounts for the missing information and difficulty classifying some of the individuals as over- or undercontrolled.

Chapter 4: The Perils of High Self-Control: A Systematic Review Of Maladaptive Overcontrol And Offending

This chapter involves a systematic review of all empirical studies examining behavioural overcontrol in a forensic sample. Identified studies will be collated and subjected to systematic analysis to confirm whether there are people who offend even though they have high self-control, and if relevant, to identify specific clinical and forensic markers that may distinguish over- from undercontrolled individuals with convictions.

4.1 Introduction

Implicitly or explicitly, the functional form of the relationship between self-control and criminal behaviour is posited as being linear (Gottfredson & Hirschi, 1990; Mears et al., 2013): the more self-control a person has, the less likely they are to engage in criminally supportive thinking and behaviour. For instance, Gottfredson and Hirschi (1990) theorised that low self-control increases the probability of criminal behaviour, whilst “high self-control effectively reduces the possibility of crime—that is, those possessing it will be substantially less likely at all periods of life to engage in criminal acts” (p. 89). This linear view of self-control and offending dominates forensic theory and practice (Day et al., 2008). However, a plethora of research in general and clinical populations indicates that too much self-control (overcontrol) may be equally maladaptive and disadvantageous as too little self-control (undercontrol) (Block & Block, 2006; Bohane et al., 2017; Lynch, Hempel, & Clark, 2015).

Understanding what drives criminal behaviour amongst individuals who have high self-control is critical, as this group of individuals fail to conform to the theoretical expectation that high self-control protects against offending. Megargee’s (1966) typologies of over- and undercontrolled violent offenders is one explanation. The *chronically overcontrolled* type is posited to be:

“often a fairly mild-mannered, long-suffering individual who buries his resentment under rigid but brittle controls. Under certain circumstances he may lash out and release all his aggression in one, often disastrous, act. Afterwards he reverts to his usual overcontrolled defenses”. (p. 2)

The *undercontrolled aggressive* type is described as:

“a person whose inhibitions against aggressive behavior are quite low. Consequently, he usually responds with aggression whenever he is frustrated or provoked. ... Because of his low level of inhibitions he is likely to be diagnosed as a sociopathic personality, antisocial, or dissocial type”. (p. 2)

Megargee’s (1966) conceptualisation of the overcontrolled individual pinpoints distinct offending profiles, that is, one-off, extremely violent offences. Clinically, excessive suppression of anger and resentment, high defensiveness, a propensity for rigid behaviour, and explosive outbursts when self-control is depleted would be anticipated. Cognitive explanations have subsequently been added to Megargee’s (1966) original conceptualisation, and these emphasise the aggravating role of cognitive rigidity and anger rumination in driving the person to a tipping point at which they can no longer inhibit and suppress angry feelings (Day, 2009; Howells, 1983).

A novel, more comprehensive, neurobiosocial theory of overcontrol has been proffered by Lynch (2015, 2018a). Whilst this neurobiosocial theory has only relatively recently been applied to forensic populations (Hamilton et al., 2018), it is being used to explain and treat a range of clinical disorders associated with maladaptive overcontrol, such as anorexia nervosa, refractory depression, and Cluster A and C personality disorders (Hempel et al., 2018a; Lynch & Cheavens, 2008; Lynch et al., 2013, 2020; Lynch et al., 2015a; Lynch, Whalley, et al., 2015b).

Lynch’s (2018a) explanation of maladaptive overcontrol has three overarching influences. First, the *nature* component of the theory is concerned with biogenetic and biotemperamental predispositions that are associated with four specific biotemperamental biases that function to exacerbate overcontrolled coping. Lynch (2018, p. 47) describes these biotemperamental deficits or excesses as: heightened states of defensive arousal (high threat sensitivity); diminished experiences of spontaneous pleasure and excitatory arousal (low reward sensitivity); superior capacities for self-control, distress tolerance, and delay of gratification (high inhibitory control); and prioritising attention to detail over more global processing (high detail-focused processing). Nurture is the second component of the model, with family,

cultural, and environmental factors posited to function in ways “to reinforce, maintain, or exacerbate overcontrolled coping” (Lynch, 2018, p. 55). Sociobiographical feedback can include historical (adverse childhood experiences, past learning) and immediate environmental contingencies (present living conditions and new learning). The transactions are posited by Lynch, (2018a) to be iterative and bidirectional; that is, nature influences nurture, and vice versa, and they are posited to strengthen the use of maladaptive overcontrolled coping. The third component, restricted overcontrolled coping, has five themes: (1) excessive inhibition of emotional expression; (2) hypervigilance and cautiousness; (3) aloofness and distance in relationships; (4) rigid and rule-governed behaviour; and (5) elevated envy and bitterness.

The idea that some people who have committed offences may have too much rather than too little self-control has been largely ignored, despite Megargee (1966) identifying an “*overcontrolled violent offender*” type over 50 years ago, and longitudinal studies consistently identifying an overcontrolled personality type in clinical and general populations (Bohane et al., 2017). Promising new explanations about maladaptive overcontrol (Lynch, 2018a) and a new treatment for overcontrolled conditions offered by Lynch (2018b) give new hope for rehabilitation, should an overcontrolled subgroup be confirmed in forensic samples. One major shortcoming is an absence of a synthesis of existing research. Systematically reviewing and synthesising the extant knowledge is essential to advancing our understanding of overcontrolled individuals who offend, as well as helping theory development, identifying promising areas for further research, informing forensic practice, and guiding future directions in research and study design. A systematic analysis and reappraisal of our understanding of overcontrol would therefore be helpful and timely, especially given recent advances in theorising and treatment.

This review aims to take stock of the extant forensic literature in relation to overcontrol and offending and hopes to enhance our understanding of overcontrolled coping and personality in forensic populations. The objectives of this review are as follows:

1. To conduct a preliminary quantitative synthesis of the forensic studies examining overcontrol from 1962 to 2019. Published articles and unpublished papers investigating overcontrol and criminal behaviour will be explored to ascertain academic interest in this area over time and to establish the most active disciplines, researchers, and journals.

2. To identify the prevalence of overcontrol amongst forensic populations.
3. To discern any patterns of criminal behaviour amongst overcontrolled individuals with convictions.
4. To synthesise the extant literature in terms of the three overarching domains of the new overcontrol theory proposed in Lynch, (2018a), that is, biotemperamental, socio-developmental, and coping characteristics.

The amount and type of research conducted within the field of overcontrol and offending is unlikely to lend itself to meta-analysis; thus, the review will be predominantly qualitative in nature. Data-analytic and statistical trends will, however, be noted.

4.2 Method

4.2.1 Search Methods and Identification of Studies

No pre-existing systematic reviews of overcontrol or high self-control and criminal behaviour were identified. A four-step search strategy was used to maximise identification of both published and unpublished studies. An initial limited search of Medline and PsycInfo was undertaken, followed by analysis of the words contained in the title and abstract, and the index terms used to describe each article. This search revealed that the context, offence types, and mental disorder were often used in titles and abstracts to describe participants (e.g., maximum security prison, mentally disordered offenders, and abnormal homicide offenders). To ensure important articles were not missed, “setting” was added to the search strategy, such as special hospital, maximum security, and medium security. The term “offender” was changed to “offen*” to ensure all offence types/offensive behaviour got picked up and “mentally disordered offender” or the indexing term “mentally ill offend*” were added to identify studies involving forensic psychiatric patients. Table 2 reports the textwords and controlled vocabulary terms that were developed and applied from this initial search onwards.

Table 2: Terms used in the Search Strategy for Selected Databases

	Keywords and Indexing Terms
Population	Criminal* OR Juvenile Delinquent* OR Felon* OR Inmate* OR Offend* OR Parole* OR Prisoner* OR Probation* OR Mental* Disorder* Offend* OR MESH:Mentally Ill Offenders
Setting	Secur* Hospital* OR Secur* Service* OR Secur* Facilit* OR Secur* Unit* OR High Secur* OR Medium Secur* OR Low Secur* OR Regional Secure* OR Maximum Secur* OR Prison OR Special Hospital
Condition	Overcontrol* OR Overcontrol* OR Over-regulat* OR Overregulat* OR MESH:Self control (OR Self regulation [#]) OR Anger Regulat* OR Emotional Inhibition OR Ego control OR Ego Resilien*

indexing terms differ across databases

A second search using database-relevant combinations of the identified textwords and controlled vocabularies was undertaken across all included databases (see Table 32). The original search was conducted in October 2016 and restricted to English language articles published in the period 1962–2016. An updated search was undertaken to identify any articles published between the original search (October 2016) and completion (December 2019). Several electronic databases were searched, and these are reported in Table 3 along with the resulting numbers of papers. Thirdly, the reference lists and citations of all included records and articles were searched for additional studies and any grey literature, such as PhD or MSc theses. Fourthly, five authors who featured most in cited literature were selected for further contact as “expert commentators”, and they were asked to identify any unpublished research that may be in existence. Studies identified via these routes were reviewed for inclusion, and authors of primary studies were contacted, if required, to provide additional data.

4.2.2 Study Selection

Studies and publications were selected according to the population, condition, outcome, and study design (PCOS) algorithm described in Table 3 and the following paragraphs.

Table 3: PCOS Criteria for This Review

	Inclusion	Exclusion
Population	Legally sanctioned individuals, including male, female, adult, young/juvenile (over age 12 years), prisoners, forensic psychiatric patients, or probationers/parolees.	Individuals with high self-control who may have offended but were not legally sanctioned for such behaviour or individuals with no known history of criminal behaviour.
Condition	Diagnosed or identified as having overcontrolled coping or personality	No identified overcontrolled sample or subsample. Exclude if samples included only low self-control or undercontrolled individuals.
Outcomes	Included forensic, biotemperamental, socio-developmental, and/or clinical/coping characteristics reflecting maladaptive overcontrol.	The outcomes of interest were not included in the results section.
Study Design	Any group study examining overcontrolled individuals will be included, with quantitative, qualitative, and mixed-methods studies all potentially eligible for inclusion.	Expert opinion papers and single case studies were excluded.

The population was limited to legally sanctioned individuals, and all studies had to evidence a clearly identified or diagnosed overcontrolled sample (condition). If no explicit method for identifying the overcontrolled sample had been stated, or if the study sample included only low self-control or undercontrolled individuals, it was excluded. Studies were included if they reported outcomes linked to offending profiles of overcontrolled individuals or any of the three components of maladaptive overcontrol posited by Lynch, (2018a) and Megargee (1966), such as emotion inhibition, anger regulation, self-control and so on. No strict criteria on study design were imposed, except that it included group studies and use of empirical data. This liberal approach to study selection criteria supports a full examination of any research that exists, and the forensic and clinical domains suggested by theoretical accounts of maladaptive overcontrol (Megargee, 1966; Lynch, 2018a). It also provides an opportunity to investigate the impact of design and measurement variation on study findings.

Study selection involved an initial screening of titles and abstracts against the PCOS inclusion criteria to identify potential papers, followed by an examination of the full papers against the inclusion and exclusion criteria to confirm relevancy. Initial screening of studies for selection was undertaken by two raters (LH and AM) and disagreements regarding study eligibility were resolved by having the article re-reviewed by a third rater (BW) for final inclusion or exclusion. The full text of articles meeting the inclusion criteria were retrieved and reviewed independently by one rater (LH). Where it was unclear whether or not the criteria had been met, articles were re-reviewed by AM for final inclusion or exclusion. Data extraction was completed by one rater (LH), and a random sample of 10% of data-extraction templates for selected papers were reviewed by AM to check consistency. Any disagreements were discussed by LH and AM and, where necessary, the author(s) of the original study were contacted for further information. The references were managed in RefWorks.

4.2.3 Data Extraction and Quality Assessment

A bespoke data-extraction template was developed to capture demographic information, the core constituents of the PCOS criteria and items from the critical appraisal tool. A “best-fit framework” approach was used, which involves extracting data from primary studies against an a priori theory or predetermined framework to better understand the outcomes/phenomena of interest (Carroll et al., 2011, 2013). Using the best-fit framework approach, four themes were identified from the two dominant theories (Megargee, 1996; Lynch, 2018): forensic, biological, socio-developmental, and clinical.

Forensic characteristics extracted included information about offending and victim characteristics, such as index offence, types of offences, age at first conviction, age at first violent conviction, age at first sexual conviction, sentencing history, weapon use, setting for offence, and unusual crime-scene characteristics. Victim characteristics extracted included information about the victim’s age, sex, ethnicity, and the nature of their prior relationship with perpetrator (known, stranger, intimate partner: current or past). Clinical characteristics including general thinking style, distorted and criminal thinking style, emotion regulation, impulse control, interpersonal functioning, comorbid mental health conditions, personality disorders, psychopathy, and any results from psychometrics and psychological tests. Socio-developmental characteristics include family background, trauma history, parenting

experiences, and parental discipline. Added to these theoretical themes was an additional category called prevalence, which relates to the proportion of over- and undercontrolled individuals identified in cross-sectional studies. The extraction tool also included information about document type, source of publication, authors, location, date of publication, theoretical affiliation, and demographic information. The S (study design) component of the PCOS criteria and other methodological information was incorporated into the bespoke extraction tool via a critical appraisal tool.

The Crowe Critical Appraisal Tool version 1.4 2013 (CCAT; Crowe & Sheppard, 2011; Crowe et al., 2012) was used to critically appraise retained articles, as it is specially designed for complex systematic literature reviews that include qualitative, mixed-methods, and quantitative studies. The CCAT considers both reporting and methodological criteria. It has a user manual, clear origins as to its criteria and construct validation (Crowe & Sheppard, 2011), and evidenced good inter-rater reliability of .74 (Crowe et al., 2012).

The CCAT version 1.4 2013 has 22 items divided into eight categories covering: Preliminaries; Introduction; Design; Sampling; Data Collection; Ethical Matters; Results; and Discussion. The items are rated on a nominal scale (present/absent/not applicable), and each category receives its own score on a 6-point scale (0–5), with 0 being the lowest score and 5 being the highest. As per the scoring criteria in the user manual, the tick marks for present, absent, or not applicable were not simply totalled to reach an overall category rating or as a simple check list; the item descriptors are not all of equal importance, and the absence of some have more impact on study quality than others, so the appraiser took into consideration the merits of each individual study, all aspects of each category, and the tick marks for item descriptors before assigning a score to a category. The total score given to a paper was expressed as a percentage by dividing the total score by 40 and multiplying by 100. The total percentage was written to the nearest integer, and this figure is a useful summary of the overall assessment of a paper.

4.2.4 Data Synthesis

Data were summarised in narrative and tabular formats and included both a quantitative and narrative synthesis. The first section of the review summarises the authorship, publication trends, and range, quality, and type of research evidence. Diagrams and clear descriptive

summaries of the selected studies have been produced detailing information on sample identification method, sample size, study design, location and setting, outcome measures used, and main findings. Cross-study synthesis was undertaken, including descriptions of the amount of information found, overall statement of the prevalence of overcontrol, summary of the results of individual studies, and aggregation of findings to generate a comprehensive synthesised set of statements/findings that can be used as a basis for evidence-based practice. The results were not subjected to meta-analysis due to the small number of robust quantitative studies.

4.3 Results

4.3.1 Selection of Studies

Table 4 summarises the databases searched and the number of potential studies that were identified. The initial searches generated 2,503 possible articles, which were reviewed for duplicates, resulting in 1,595 articles. A further 36 full articles were identified from reviewing the reference lists, resulting in a total of 1,631 titles and abstracts being reviewed for eligibility. Eventually, 120 articles were deemed of sufficient relevance to access their full texts, and 49 were selected for data extraction (Figure 5). One of the five identified experts had passed away (Ronald Blackburn), one had retired and was not contactable (Edwin Megargee), one was unidentifiable (Monika Henderson), and only one (Barry McGurk) of the other identified experts responded to a request for information, and he offered no new information about potential unpublished or published papers.

Table 4: Summary of Databases Searched and Results

Databases Searched				
	ASSIA	200	PsycArticles	20
Criminal Justice Abstracts		483	PsycInfo	638
	HSRProj	3	PubMed	64
	IBSS	783	Science Direct	46
	Medline	110	Social Services Abstracts	47
NCJRS Abstracts		9	Google Scholar (10 pages only)	100
Total number of hits 2,503				

4.3.2 Prisma Flowchart

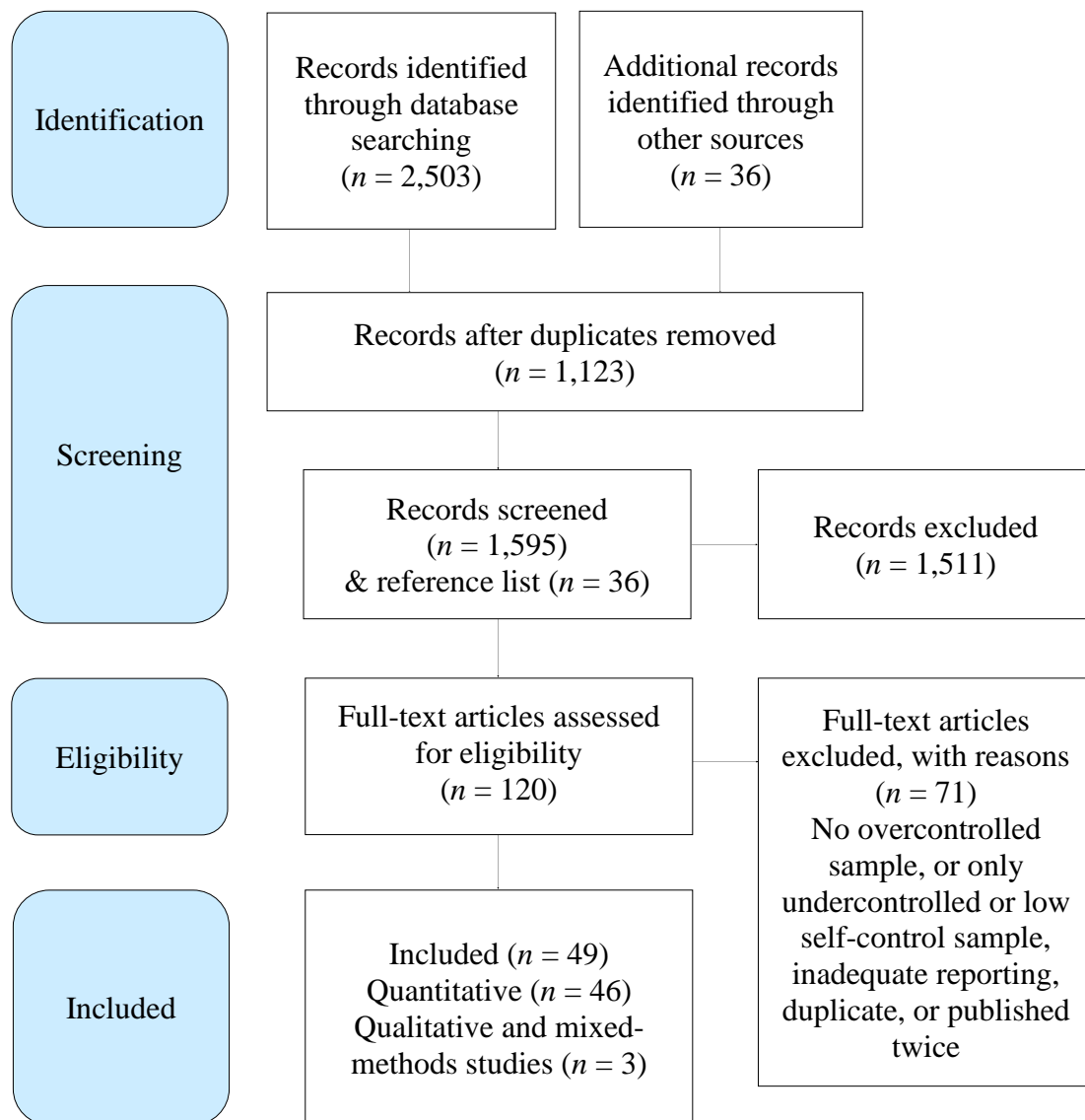


Figure 5: Prisma Flowchart

4.3.3 Summary of Findings from Selected Studies

The findings will be structured in accordance with the key review questions and outcome variables of interest. First, academic interest in overcontrol, sample characteristics, and the designs of the selected studies will be examined. Second, the proportion of overcontrol in offending populations will be considered, then Lynch's three overarching domains linked with

maladaptive overcontrol, that is, biotemperamental, socio-developmental, and coping characteristics. Finally, forensic characteristics associated with Megargee's (1966) theory will be examined, such as offending history, institutional behaviour, and victim characteristics. The studies in the review had two main research designs – cross-sectional studies and comparison studies – and, where relevant, this will be used to organise papers for narrative synthesis.

4.3.4 Academic Interest

Before synthesising the specific outcomes, trends were explored in publications since Megargee's PhD thesis in 1962. Most selected studies were journal articles ($n = 39$, 80%), along with one book chapter, and nine studies from the grey literature, comprising eight (16%) unpublished PhD theses and one conference paper. Many of the published studies were over 40 years old, with 34.7% ($n = 17$) of eligible articles published before 1979 and rising to 55.1% ($n = 27$) published before 1989. An increase in articles published after 2010 was noted. The journal most frequently publishing articles in this area was *Criminal Justice and Behaviour* (17.9%, $n = 7$) and *British Journal of Criminology* (15.4%, $n = 6$). The *Journal of Personality and Individual Differences* published four articles (10.3%), whilst the *Journal of Consulting and Clinical Psychology* published three of the eligible articles (7.7%). Thirty-four authors were responsible for the 49 eligible studies, with only four authors publishing more than three articles. Psychologists have contributed most frequently to this literature, and more recently, contributions from criminologists are noted. The theoretical basis used by criminologists relied on Gottfredson and Hirschi's theory, while psychologists tended to test Megargee's conceptualisation.

4.3.5 Sample and Study Design Characteristics

4.3.5a Population, Setting, and Location

Most of the selected papers ($n = 49$) examined USA samples (41%, $n = 20$), followed by samples from the United Kingdom (31%, $n = 15$), Canada (10%, $n = 5$), Australia (6%, $n = 3$), Germany (4%, $n = 2$), and a single paper each from South Africa, Iceland, Spain, and Serbia. Incarcerated samples, with participants in prison, forensic psychiatric units, or young offender institutions, were over-represented (92%) in eligible studies. Four studies had community-

treatment samples (Hershorn & Rosenbaum, 1991; Redondo et al., 2019; Smith et al., 1987; Worling, 2001). Adult male samples were over-represented in the selected studies (63%, $n = 31$). Six eligible studies had adult female-only samples, nine had male juvenile samples, two studies had mixed male and female samples (one juvenile and one adult), whilst one study did not specify the ages of the participants (Lane & Kling, 1979).

4.3.5b Methodological Quality, Study Design, and Analytic Technique

The methodological quality of the included studies identified by the search was low–very low according to the hierarchy proposed by Crowe and colleagues and operationalised in the CCAT (Crowe & Sheppard, 2011; Crowe et al., 2012). No previous systematic reviews or meta-analyses were identified, and no studies featured RCTs or quasi-experimental methods. Analysis of the study design and analytic techniques in the eligible studies revealed that most were quantitative (94%); two were qualitative (4%) and one was a mixed-methods study (2%). Of the eligible studies, 19 had a cross-sectional design and used some type of grouping analysis such as cluster analysis. Comparison studies made up the bulk of the other selected studies, with comparison groups assigned based on Megargee’s hypothesis about differences in patterns of violent offending and/or levels of overcontrolled hostility. There were two qualitative studies that used Strauss and Corbin’s (1998) grounded theory method and one mixed-methods study relying on repertory grids.

4.3.5c Sample Characteristics

Studies typically reported the background characteristics of the whole sample rather than reporting demographics for the over- and undercontrolled groups. When subsample demographic information was reported, no significant differences in age or marital status between over- and undercontrolled groups was typical (Blackburn et al., 2008; Henderson, 1982; Howells, 1983; Low & Day, 2015; McGurk, 1981; Rosenzweig, 1978). Overcontrolled participants tended to be better educated and had more work skills/experience (Low & Day, 2015; McGurk, 1978; Redondo et al., 2019; Widom, 1978). The Wechsler Adult Intelligence Scale IQ scores were reported as being average for overcontrolled groups in those studies that evaluated intellectual functioning (Blackburn, 1968; Blackburn et al., 2008; Howells, 1983; McGurk, 1981; Quinsey et al., 1983). A selection bias may account for the average IQ result,

as illiterate and lower intellectual-functioning cases were often excluded because they did not meet the reading and writing requirements for the personality measures utilised.

4.3.6 Proportions of Overcontrol and Undercontrol in Forensic Samples

The cross-sectional studies extracted from the current literature search typically identified two or three superordinate clusters: overcontrolled, regulated, and undercontrolled. The proportion in the overcontrolled group ranged from 5% to 74%, with a mean of 39% ($SD = 15.35$). The undercontrolled proportion ranged from 24% to 83%, with a mean of 44% ($SD = 17.79$). The resilient/regulated group identified in the general and clinical populations (for a review, see: Bohane et al., 2017) was identified in four forensic cross-sectional studies (Herzberg & Hoyer, 2009; Herzberg & Roth, 2006; Low & Day, 2015; Widom, 1978).

The proportions of undercontrolled and overcontrolled individuals varied across studies (see Figures 6 and 7). The proportion classified as overcontrolled was consistently higher (34–51%) in more intensive UK-based high-security treatment services investigated by Blackburn and colleagues and Henderson (1982, 1983a). An outlier to this trend was the IPV community-treatment sample, which reported 74% of the sample as overcontrolled (Redondo et al., 2019). The overcontrolled proportion was lower in remand and awaiting-trial samples (McGurk, 1978, 1979), community samples of men with sexual convictions (Smith et al., 1987; Worling, 2001), and samples including females (Widom, 1978; DeLisi et al., 2010).

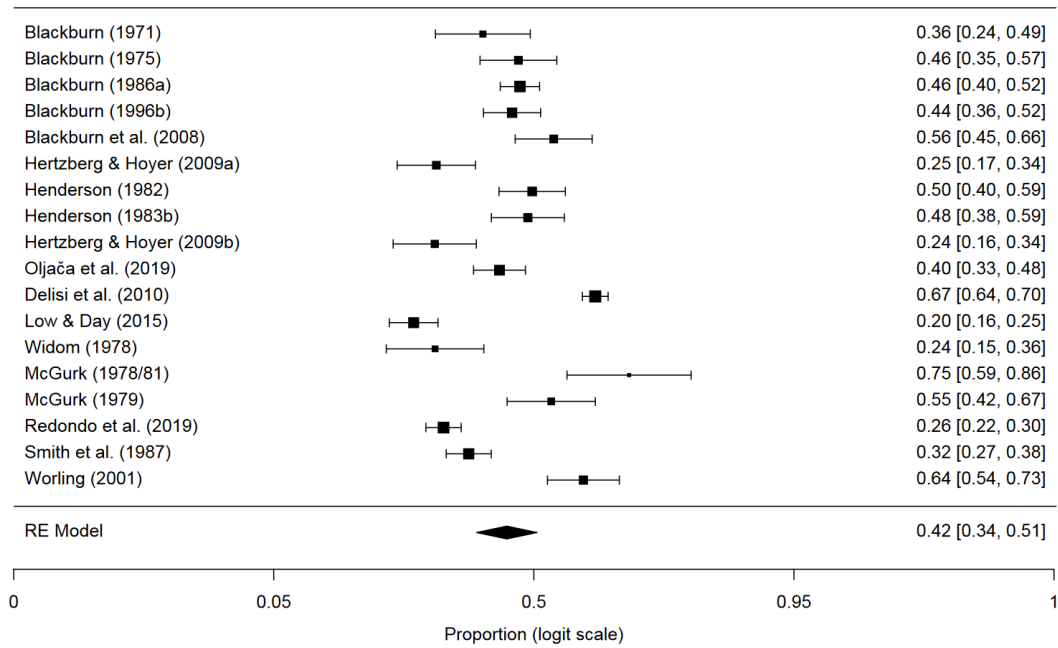


Figure 6: Forest Plot of Prevalence of Undercontrol with 95% Confidence Intervals from Random Effects Model

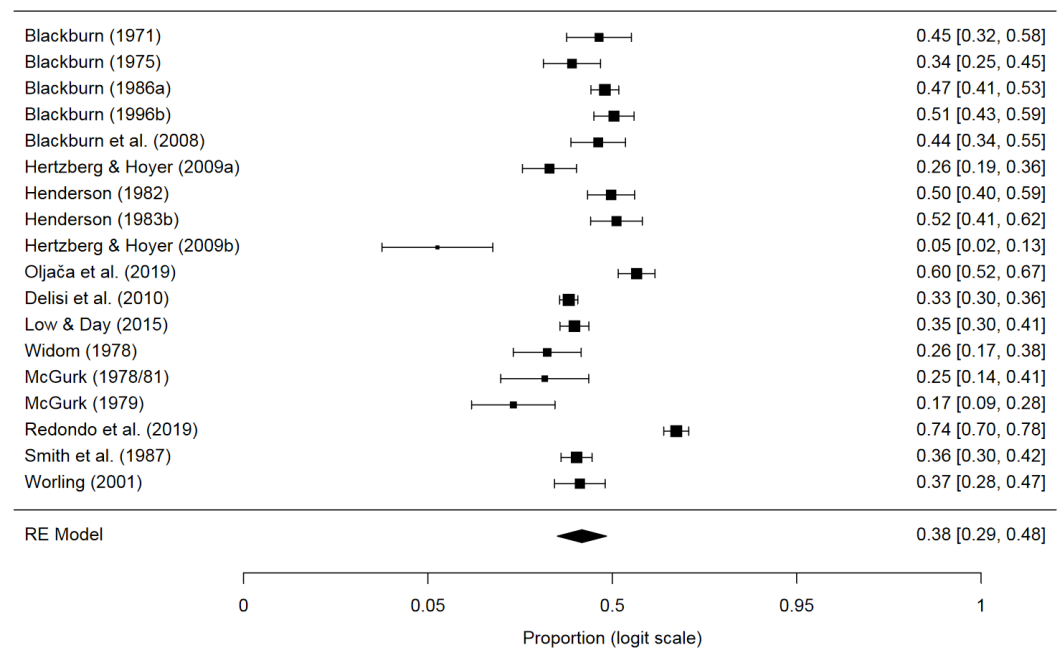


Figure 7: Forest Plot of Prevalence of Overcontrol with 95% Confidence Intervals from Random Effects Model

The meta-analysis estimates the prevalence from the number of over- or undercontrolled reported in each study as a proportion of the total sample size using a logistic transformation. Estimates were from a random-effects meta-analysis fitted with a restricted maximum likelihood approach using a Knapp–Hartung correction with the R *metafor* package (Viechtbauer, 2010). Where more than one figure was reported (Blackburn, 1986, 1996), the Ward (1963) clustering analysis and the Special Hospitals Assessment of Personality and Socialisation (SHAPS) measure (Blackburn, 1996) were selected, as these were most consistently employed. Figures 6 and 7 show the proportions and 95% confidence intervals for the prevalence in each study with the aggregate effect size (the proportion of over- or undercontrolled individuals) from the random-effects model. The value of I^2 (a measure of relative heterogeneity) was high for both overcontrol ($I^2 = 38\%$) and undercontrol ($I^2 = 42\%$), indicating the substantial variation in prevalence from sampling variability between as well as within studies. Moderator analyses (age, personality measure used, and context) did not appreciably reduce this heterogeneity, and this suggests that more accurate estimates of prevalence require greater standardisation of procedures for assessing overcontrol and undercontrol, given the wide range of measures, sample characteristics, and classification methods being used.

4.3.7 Component 1: Biotemperamental Characteristics

Unsurprisingly, the published studies selected did not directly examine the posited biotemperamental biases, as they were produced before Lynch’s work became known. Only one selected study examined neurobiological functioning: Rawlings (1973) found greater impairment on auditory and motor development tests in juveniles who had committed a serious assault.

4.3.8 Component 2: Socio-Developmental Experiences

4.3.8a Childhood Maltreatment

From the selected studies, only five directly reported rates of childhood maltreatment amongst overcontrolled individuals with convictions (Blackburn et al., 2008; Chambers et al., 2011; Hershorn and Rosenbaum, 1991; Jensen, 2003; Worling, 2001). The trends found were that

both over- and undercontrolled individuals experienced similar levels of childhood sexual and physical abuse. Overcontrolled individuals were found to have experienced slightly more emotional and psychological neglect growing up compared to undercontrolled individuals, but this trend was not statistically significant. Using detailed interviews as part of a qualitative study, Chambers et al. (2011) found that women who were identified as overcontrolled reported less childhood maltreatment than undercontrolled clusters. Using a quantitative methodology, Jensen (2003) did not confirm Chambers et al.'s (2011) findings, as self-reported rates of mothers' abusiveness, parental maltreatment, and parental rejection did not differ between over- and undercontrolled women with a conviction. The type of maltreatment evaluated, different approaches to sample assignment, and the different methodologies may explain the contradictory findings of the two studies.

4.3.8b Parenting Experiences

Only nine studies specifically examined parenting experiences; five focused on male experiences (Chambers et al., 2009; Haven, 1972; Hershorn & Rosenbaum, 1991; Megargee & Carbonell, 1993; Rawlings, 1973) and four examined female experiences (Chambers et al., 2011; Frederiksen, 1975; Jensen, 2003; Rosenzweig, 1978). Synthesising findings across the nine studies was difficult, with considerable heterogeneity in the measurement, methodological, and statistical procedures employed. Additionally, some studies did not examine parenting experiences per se but commented upon social adjustment growing up, such as schooling experiences.

Compared to undercontrolled individuals with convictions, those who were categorised as overcontrolled were more socialised, perhaps oversocialised, and had fewer school problems and better employment records (Haven, 1972; Megargee, 1966; Megargee & Carbonell, 1993; McGurk, 1981; Widom, 1978). Rawlings (1973) reported little difference in the family backgrounds and parenting experiences of juveniles with convictions, whereas Megargee and Carbonell (1993) found that adult males who committed single-episode violent offences had better parenting and familial experiences growing up than individuals convicted of multiple violent offences. Hershorn and Rosenbaum (1991) found that overcontrolled individuals convicted of IPV experienced more maternal rejection and firmer parental discipline. The parenting experiences of overcontrolled females with convictions were consistently less

positive than those of overcontrolled males (Frederiksen, 1975; Rosenzweig, 1978). For females, there was less overt parental tension reported but greater likelihood of parental abandonment, parental indifference, and familial rejection. There was also an emphasis on obedience and conformity delivered verbally rather than via physical aggression (Frederiksen, 1975; Rosenzweig, 1978).

4.3.9 Component 3: Overcontrolled Coping and Personality Characteristics

The published research has mostly focused on the personality and coping characteristics associated with maladaptive overcontrol. Therefore, to support synthesis, the findings in this section have been structured around research design.

4.3.9a Cross-Sectional Studies

Nineteen cross-sectional studies were identified, with 53% having been published over 30 years ago. White adult males ($n = 19$) of average intelligence living in the UK or USA were over-represented. There was one female sample, two mixed female and male samples, and two juvenile male samples with sexual convictions. Almost all participants were detained in a forensic psychiatric hospital, prison, or institution for young people, with only three community-based psychological-treatment samples. The published cross-sectional studies focused mostly on individuals with violent convictions, reflecting Megargee's original theorising about over- and undercontrol being two distinct violent-offending typologies. All the cross-sectional studies were retrospective, relying heavily on pre-existing quantitative data and different approaches to cluster analysis. Various measures were used as the basis for clustering data, with 32% relying on the full Minnesota Multiphasic Personality Inventory (MMPI/MMPI-2) and/or MMPI subscales. The study characteristics, sample details, measures, and statistical techniques employed are summarised in Appendix B (Characteristics of Included Studies).

Cross-sectional studies identified two, three, four, or five clusters (see Appendix B). Overcontrolled individuals with convictions were consistently identified in cross-sectional studies as exhibiting high impulse control (high restraint), normal personality profiles, and high defensiveness and denial of psychological problems (Blackburn, 1971, 1975, 1986, 1996;

McGurk, 1978; McGurk & McGurk, 1979; Smith et al., 1987; Widom, 1978). Overcontrolled individuals were less likely to act upon hostile urges (Blackburn, 1986, 1996; Henderson, 1982, 1983a; McGurk, 1978; Oljača et al., 2019). The overcontrolled/over-regulated groups' STAXI-2 scores suggested they were less angry and exercised more control over their anger than undercontrolled individuals with violent convictions (Low & Day, 2015; Redondo et al., 2019). However, in these studies, the overcontrolled participants' anger regulation was not excessive as posited by Megargee, rather their anger profiles were commensurate with the general-population STAXI scores. As predicted, undercontrolled participants had clinically significant anger problems.

Two overcontrolled subtypes were identified in 11 of the 19 cross-sectional studies. Labels varied depending on the author and the study's theoretical underpinning, with *controlled* and *inhibited* labels used most frequently for the two overcontrolled subtypes, and *primary psychopath* and *secondary psychopath* for the undercontrolled subtypes. This consistency of labelling is probably an artefact caused by a large proportion of the cross-sectional studies being produced by one author (Ronald Blackburn) or others working in the UK around the same time (Henderson, 1982; McGurk, 1978, 1981).

The overcontrolled clusters identified in different studies showed close resemblances to each other, but they were not identical (see Appendix B). For instance, Blackburn (1971) identified two overcontrolled subtypes amongst a sample of adult male in-patients convicted of murder. Here, *repressors* were characterised by an MMPI profile within normal limits, an apparent absence of psychiatric symptoms, high levels of defensiveness and denial, high impulse control, and low levels of anxiety and hostility. Those in the *depressed–inhibited* subtype were similarly defensive in their response styles and high in impulse control, but they had more problems with depression, repression, social anxiety, and social introversion. Both the repressor and depressed–inhibited subtypes directed hostility towards themselves rather than towards others, which typified how undercontrolled subtypes managed their feelings of hostility. The repressor and depressed–inhibited overcontrolled subtypes were similarly identified by McGurk (1978); however, only one cluster was identified by McGurk and McGurk (1979), with the depressed–inhibited subtype not confirmed in remand prisoners charged with murder.

Blackburn (1975, 1986, 1996) and Blackburn et al. (2008) replicated findings from previous research using various two-step clustering procedures and personality measures.¹ Two overcontrolled clusters were again identified in four different psychiatric in-patient samples, but new labels were applied to the overcontrolled subtypes. The repressor group (Blackburn, 1971) was consistent with the newly labelled *controlled* subtype, characterised again by normal MMPI profiles, a pattern of high defensive denial of psychological problems, a high degree of impulse control, and a relative absence of hostile feelings and negative affective experiences. Interpersonally, the controlled subtype was socially outgoing and relatively well socialised. The *inhibited* subtype, previously labelled depressed–inhibited, was again characterised by strong denial, extreme inhibition, and high impulse control. Unlike the controlled subtype, they were prone to dysphoria, depression, and anxiety, and were socially shy, introverted, and withdrawn. The inhibited subtype reported a relative absence of hostile evaluations of others; some angry feelings were reported, but aggressive acting-out was again relatively low.

Similar proportions of overcontrol (52%) and undercontrol (48%) were identified in a sample of adult male prisoners convicted of at least one violent offence (Henderson, 1982) and non-violent offences (Henderson, 1983b). Like previous researchers (Blackburn, 1975, 1986, 1996), Henderson’s two subtypes were identified and labelled as controlled and inhibited, and they produced almost identical MMPI profiles to those described previously. Henderson (1982) also reported results from previously unused supplementary MMPI measures and found that the controlled subtype scored higher on dominance, overcontrolled hostility, and empathy, and lowest on neuroticism, psychoticism, hostility, and delinquency. The inhibited subtype scored significantly lower on extraversion, hostility, and dominance, and had greater difficulty with various aspects of group relations and managing friendship networks.

Considering a prison population, Herzberg and Roth (2006) confirmed the presence of five personality-based clusters previously identified in their general-population study reported in the same paper. The clusters were named *resilient*, *overcontrolled*, *undercontrolled*, *confident*, and *reserved*. The overcontrolled cluster had pronounced NEO-FFI scores on neuroticism, low scores on extraversion, and medium to low scores on openness, agreeableness, and

¹ The Millon Clinical Multiaxial Inventory (MCMI), Special Hospital Assessment of Personality and Socialisation (SHAPS), NEO Personality Inventory (NEO-PI), NEO Five-Factor Inventory (NEO-FFI), California Psychological Inventory (CPI), and Antisocial Personality Questionnaire (APQ).

conscientiousness. Herzberg and Hoyer (2009) confirmed the NEO-FFI personality profile with a different German sample of adult male prisoners (Study 1) and forensic in-patients (Study 2). In Study 1, Herzberg & Hoyer (2009) found that overcontrolled individuals exhibited the highest level of self-control out of the five clusters, and they often suppressed unwanted thoughts and were likely to be prone to depression, obsession, compulsion, and intrusive thinking. Interpersonally, the overcontrolled group were found to be more naïve, overly nurturant, and intrusive. In Study 2, Herzberg & Hoyer (2009) found that overcontrolled psychiatric in-patients had a variety of mental health problems, high levels of clinical distress, and high levels of obsessive–compulsive behaviour, depression, anxiety, social anxiety, and paranoid ideation. Interpersonally, they differed from the overcontrolled prisoners identified in Study 1 (Herzberg & Hoyer, 2009), being more prone to non-assertive behaviour but less susceptible to domineering, overly nurturant, and intrusive behaviour.

Three North American cross-sectional studies examined overcontrol in juvenile offending samples. DeLisi et al. (2010) intersected the distress and restraint dimensions of the Weinberger Adjustment Inventory at age-appropriate means to identify two overcontrolled subtypes: *repressor* and *suppressor*. The repressor subtype ($n = 181$) is similar to the controlled subtype identified in the UK, being characterised by low distress and high restraint. The suppressor subtype ($n = 80$) exhibited high distress and high restraint, which reflected the previously identified inhibited subtype. Smith et al. (1987) and Worling (2001) considered male juveniles convicted of sexual offences and living in the community. Applying two different cluster-analytic techniques – Wishart and Euclidean – to MMPI profiles, both studies classified 36% of their samples as overcontrolled. Smith et al.’s (1987) overcontrolled subtype (“Group I”, $n = 55$) produced normal-range MMPI profiles and were described as shy worriers with few friends and who were high in moral certitude. Smith et al.’s (1987) second overcontrolled subtype (“Group III”, $n = 40$) also had normal-range MMPI profiles and were described as frank, realistic in describing themselves, socially outgoing, and having normal affect and no impaired judgment, and they were likely to be emotionally inhibited and given to (perhaps violent) emotional outbursts. Smith et al.’s (1987) Group I was like the inhibited subtype, and Group III was akin to the controlled subtype.

Worling (2001) similarly identified two overcontrolled subtypes in a Canadian sample ($N = 97$) of young people in community treatment for sexual offending. There were some similarities to previous findings, as Worling's overcontrolled subtypes both reported high defensiveness and high impulse control, but Worling's subtypes were both interpersonally impaired. Worling (2001) labelled one subtype the *overcontrolled/reserved* adolescents, and they were characterised by prosocial attitudes, were shy and rigid, and had an overly cautious approach to interacting with others and a tendency to keep their feelings to themselves. The second subtype, the *unusual/isolated* group, were characterised by a peculiar presentation, were socially isolated, and were more criminally inclined and versatile than the overcontrolled/reserved subtype.

To summarise, the cross-sectional studies suggest there may be two overcontrolled subtypes, both characterised by high defensiveness, denial, and excessive inhibitory control. Additionally, the controlled/repressor subtype displayed low levels of reported psychopathology and personality impairment on a range of personality measures. Their personality profiles are characterised by low anxiety, neuroticism, and affective tension, and low-moderate depression. Interpersonally, the controlled/repressor subtype was more socially outgoing and at least able to maintain a social façade of apparent well-being in comparison to the inhibited subtype. In addition to high restraint, the inhibited/suppressor subtype displayed high levels of suppressed emotional tension/distress and interpersonal impairment, including extreme shyness and social anxiety, and they struggled with managing relationships. The inhibited/suppressor subtype were also more consistently identified in psychiatrically disturbed populations.

The cross-sectional studies also revealed that Cluster A and C personality disorder traits were more prevalent amongst overcontrolled individuals who had offended, and Cluster B traits were less prevalent (Blackburn, 1996; Blackburn et al., 2008; D'Silva & Duggan, 2010). Antisocial traits and features were evident in both groups, suggesting ASPD may not be a reliable discriminating variable between over- and undercontrolled offending populations. A similar level of Hare Psychopathy was also identified in over- and undercontrolled individuals detained in psychiatric hospitals (Blackburn et al., 2008; D'Silva & Duggan, 2010). Undercontrolled subtypes exhibited more PCL-R Factor 2 traits (antisocial and impulsive

lifestyle), whereas the “*controlled*” overcontrolled subtype scored highest on PCL-R Factor 1 (interpersonal and affective facets). Studies relying on self-report measures, such as MMPI, SHAPS, and the Levenson Primary and Secondary Psychopathy Scale, found that overcontrolled individuals scored significantly lower on psychopathic traits (Blackburn, 1986; Widom, 1978; Redondo et al., 2019). Blackburn (1968) also found that overcontrolled forensic in-patients were less likely to be classified as having a Psychopathic Disorder when detained under the Mental Health Act, (1956).

4.3.9b Comparison Studies

Comparison studies were used to look for differences between over- and undercontrolled forensic samples in coping and personality characteristics. Comparison groups were assigned in three main ways:

1. Test scores on the Overcontrolled Hostility Scale (OHS; Megargee et al., 1967) or a measure of self-control;
2. Expert raters au fait with Megargee’s over- and undercontrolled typologies;
3. Differences in severity and/or chronicity of violent offending. Chronicity was operationalised as single-episode or one-off violent offence vs repeated violent offences. Severity was operationalised as “extremely assaultive” vs “moderately assaultive”.

Four studies used a combination of these methods for sample assignment (Frederiksen, 1975; Jensen, 2003; Lane & Spruill, 1980; Verona & Carbonell, 2000).

Test Scores or Expert-Rater Comparison Group Assignment

To assign participants to comparison groups, 17 studies used the OHS, Thebus (2012) used the global self-control scale from Cattell’s 16PF measure, and Du Toit and Duckitt (1990) and Megargee et al. (1967) used expert raters familiar with Megargee’s over- and undercontrol typology.

Megargee et al. (1967) operationalised the construct of an overcontrolled-hostility personality trait by developing a 31-item scale derived from questions on the MMPI. This seminal validation study proposed a cut-off range on the new OHS to identify overcontrolled

individuals using a *T*-score of 70–80, whilst a *T*-score < 50 indicated the person was unlikely to be overcontrolled. In the same paper, Megargee et al. (1967) assigned 50 prisoners using the suggested OHS cut-offs: 21 to the overcontrolled group and 24 to the undercontrolled group, with 5 (10%) prisoners' protocols unclassified. The MMPI test-taking attitude of the high overcontrolled-hostility (O-H) group emphasised positive adjustment, high defensiveness, and reluctance to express symptoms on the MMPI. Their MMPI profiles were characterised as rigid, with excessive control, repression of conflicts, and a reluctance to express or act out any feelings of rebelliousness, authority conflict, alienation, hostility, or anxiety. On the California Psychological Inventory (CPI), these same individuals were characterised as methodical, conservative, dependable, conventional, easy-going, quiet, passive in action, narrow in interests, self-abasing, and given to feelings of guilt and self-blame.

Since this seminal paper, there has been considerable debate as to the reliability and validity of the OHS and how to interpret OHS scores. Jensen (2003) writes that:

Walters and Greene (1983) demonstrated that subjects with low O-H scores (O-H raw < 12) are typically not especially hostile or controlled. They are not undercontrolled as some believe. Mid-range scorers (O-H raw > 14 and < 17, are usually controlled or hostile, but not both. High scorers on the MMPI O-H scale (O-H > 18) have been shown to possess the Chronically Overcontrolled Hostile type characteristics identified by Megargee. The meanings of the low and mid-range [OHS] scores are less clear, and in fact, Megargee (1995) has argued that *T*-scores < 55 are meaningless. (p. 9)

Table 5: OHS Cut-Off Scores for Comparison Groups

Author	Country of Origin	Population	High O-H Cut-Off score		Low O-H Cut-Off Score	
			<i>T</i> Score	Raw Score	<i>T</i> Score	Raw Score
Megargee et al. (1967)	USA	Adult male prisoners	70–80	–	≤50	
Armstrong (1982)*	USA	Adult male prisoners	≥70	–	≤56	
Brad et al. (2014)	Canada	Adult male prisoners	–	≥14	–	<14
Frederiksen (1975)	USA	Adult female prisoners (top and bottom 25%)	–	≥18	–	≤13
Gudjonsson et al. (1991)	Iceland	Adult male prisoners	Used as a Continuous Measure			
Haven (1972)	USA	Adult male prisoners	≥70		≤53	
Hershorn (1983a)	UK	Adult male prisoners		>18		<18
Hershorn & Rosenbaum (1991)	USA	Adult male community treatment (median split)		>14.5		<14.5
Jensen (2003)	USA	Adult female prisoners		≥17		≤14
Lane & Kling (1979)	USA	Psychiatric in-patients	Used as a Continuous Measure			
Lane & Spruill (1980)	USA	Adult male in-patients		≥18		≤15
Moran (1986)	USA	Adult male prisoners (top and bottom third)		>16.6		<11.6
Quinsey et al. (1983)	Canada	Adult male in-patients	≥70		≤52	
Rosenzweig (1978)	USA	Adult female prisoners	70–90		≤45	
Verona & Carbonell (2000)	USA	Adult female prisoners	≥65	≥17	<65	≤16
White (1975)*	USA	Young male prisoners	≥70	≥18		≤11
White et al. (1973)*	USA	Young male prisoners	≥70	≥18		≤11

*Only included White participants

Table 5 reveals that the OHS cut-off scores varied between studies, especially those cut-offs used to define the low O-H (proxy undercontrolled) comparison group. Discerning actual cut-off scores was also complicated, as some studies cited only *T*-scores or only raw scores. The variability in the cut-off scores used to determine the samples undermines confidence in making comparisons between the proxy overcontrolled and non-overcontrolled samples. Obfuscation exists regarding what low OHS *T*-scores represent, but there is agreement that it is not undercontrol (Megargee et al., 1967; Walter & Greene, 1983). Studies that used a cut-off score of ≤16 may not have identified an actual overcontrolled subtype (Brad et al., 2014; Hershorn & Rosenbaum, 1991; Moran, 1986). Two studies – Lane and Kling (1979) and Gudjonsson et al. (1991) – administered and scored the OHS as a continuous measure as opposed to applying the validated cut-off score. Three studies used OHS as a standalone measure, when it is validated to be used in conjunction with the full MMPI questionnaire (Du Toit & Duckitt, 1990; Gudjonsson et al., 1991; Hershorn & Rosenbaum, 1991). In addition, the OHS has been found to overclassify African Americans as chronically overcontrolled (Hutton et al., 1992). Three studies specifically targeted white-only samples, trying to avoid the

inherent racial bias in the OHS measure, but this does not overcome the other issues outlined above. Given the concerns raised above about the reliability of the OHS and its ability to identify undercontrolled samples, the findings from these comparison studies will neither be reviewed nor synthesised.

Thebus (2012) used Cattell's global factor for self-control on the 16PF (Form C) and assigned 16,431 adult male prisoners to low ($n = 1,387$), average ($n = 13,745$), and high ($n = 1,209$) self-control groups using sten score ranges. Thebus (2012) reported no differences between the low and high self-control groups on extraversion and anxiety. The high self-control group differed from the low self-control group on tough-mindedness and independence, with the high group being more attentive to rules and moral standards, generally self-disciplined, and more able to accomplish their goals.

In Du Toit and Duckitt's (1990) study, two psychologists who were familiar with Megargee's over- and undercontrolled typology assigned the case files of 178 South African male prisoners to an overcontrolled, undercontrolled, or uncertain group. The overcontrolled group ($n = 21$) scored significantly higher than the undercontrolled group on the OHS and denial responses. The overcontrolled group also scored lower on Cattell's 16PF aggression, hostility, apprehensiveness, and tension, and were higher on inhibition of aggression, ego strength, superego strength, and control. They also scored lower than the undercontrolled group on extrapunitive and intropunitive scales and were less likely to engage in direct and destructive responses.

Severity and Chronicity of Violent Offending Comparison Group Assignment

The severity of violent offending was used to identify over- and undercontrolled samples in nine comparison studies (Blackburn, 1968; Frederiksen, 1975; Hoppe & Singer, 1977; Lane & Spruill, 1980; Lane & Kling, 1979; Megargee, 1966; Rawlings, 1973; Salekin et al., 2002; Truscott, 1990). In line with Megargee's clinical description, the proxy overcontrolled groups using severity of violence as an indicator were often referred to as "extremely assaultive" (EA). The EA groups were typically charged or convicted of a serious violent offence such as murder, voluntary manslaughter, and/or assault with a deadly weapon. The "moderately assaultive" (MA) group was a proxy undercontrolled group, the members of which were typically

charged/convicted of non-lethal violent offences such as battery, simple assault, gang fights, etc. There was also often a non-violent control group in these studies.

From a sample of 70 juveniles detained for assaults, Megargee (1966) identified that the EA group ($n = 9$) contained a greater proportion of the chronically overcontrolled type. Members of the EA group tended to be more conscientious, responsible, and alert to ethical or moral issues than the members of the other groups, as measured by the CPI. They were also less impulsive, and more controlled, conforming, tolerant, and clear thinking, but they were reported as being sarcastic and cynical in their verbal behaviour. There was no difference between the EA and MA groups on extrapunitiveness as measured by the Rosenzweig Picture Frustration test, hostility as measured by the Holtzman Inkblot test, or aggression as measured by Thematic Appreciation Test. Hoppe and Singer (1977) also identified no difference between an EA group and others in psychological tests assessing emotional empathy, self-focus, and external focus. Blackburn (1968) found that an EA group scored significantly higher than the MA group on all scales related to the denial of undesirable attributes, and the adult male in-patients in this sample also admitted fewer hostile feelings and slightly more intropunitive thinking. Using repertory grids, Howells (1983) also found that in-patients who committed single-episode violent offences made more negative self-comparisons and self-evaluations (intropunitive thinking) and showed more control in their negative judgments of others (extrapunitive). Female overcontrolled individuals who had committed violent offences (Frederiksen, 1975) produced similar MMPI profiles that were characterised by high defensiveness, but they did not have the significantly lower hostility, impulsivity, or rebelliousness scores that would be expected.

Megargee et al. (1967) assigned 86 adult probationers referred to the Alameda County Probation Department to EA ($n = 14$), MA (conviction for battery, $n = 28$), and non-violent control ($n = 44$) groups. They found that the EA group had the highest mean score on the newly developed 31-item OHS, but it did not differentiate between the MA and non-violent criminal groups. Lane and Kling (1979) and Lane and Spruill (1980) both confirmed that forensic in-patients categorised as EA scored significantly higher on the OHS than the other comparison groups. Females convicted of EA offences also scored higher on the OHS than the MA and non-violent groups (Frederiksen, 1975). Contrary to these findings, Hoppe and Singer (1977)

found that OHS scores did not distinguish between EA adult male forensic in-patients convicted of a violent offence and other groups convicted of sexual offences and non-violent offences. Rawlings (1973) similarly found that few Scottish male juveniles with convictions could be classified as chronically overcontrolled (OHS T -score ≥ 70) and there was no significant difference in OHS scores amongst the EA, MA, and non-violent comparison groups. Truscott (1990) and Salekin et al. (2002) also failed to find the expected differences in OHS scores between comparison groups. Salekin et al. (2002) did however find that individuals who had committed homicides scored highest in overcontrolled hostility. Truscott (1990) also found that EA individuals who scored higher on the OHS had a tendency towards conformity, defensiveness, and denial of psychological symptoms as measured by the MMPI.

The chronicity of violent offending was used to assign comparison groups in six studies, that is, a single-episode or one-off violent offence vs repeated violent offences (D'Silva & Duggan, 2010; Howells, 1983; Lane & Spruill, 1980; Lane & Kling, 1979; Megargee & Carbonell, 1993; Verona & Carbonell, 2000). Megargee and Carbonell (1993) classified young male prisoners located in Tallahassee Federal Correction Institution to either a single-episode or one-off violent offence group ($n = 240$) or a repeated violent offence group ($n = 384$). Comparisons between individuals with single-episode and repeated violent offence groups were made using a range of psychological measures and structured interview data. On the standard MMPI scales, Megargee and Carbonell (1993) found no difference between groups on validity scales (L, K, and F). The single-episode group reported significantly less psychopathology than the repeated violent offence group and scored significantly lower on MMPI psychopathic deviate, psychasthenia, schizophrenia, and hypomania scales, and they were less likely to report somatic symptoms and poor health. Behavioural indicators of physical health revealed no difference between the single-episode and repeated violent offence groups on reporting sick for work and drug and alcohol use, and they reported similar levels of social adjustment on a range of measures.

D'Silva and Duggan (2010) found that their single-episode group of forensic in-patients reported significantly more control over the expression of their anger than the repeated violent offence group on STAXI-2, but none of the other scales differed significantly. Contrary to expectation, the single-episode group's STAXI-2 scores were often within the normal range,

and they did not exhibit problems with excessive anger regulation according to STAXI-2 results. Verona and Carbonell (2000) similarly found that the single-episode and repeated violence groups did not differ on tendency to keep anger in, acting-out when angered, or anger control, as measured by the STAXI.

4.3.9c *Summary*

The following is a summary of the evidence relating to coping and personality themes indicative of overcontrol for individuals with convictions:

- More likely to exhibit personality disturbance linked to Cluster A and C personality disorders (Blackburn, 1996; Blackburn et al., 2008; D'Silva & Duggan, 2010);
- Similar levels of antisocial traits to undercontrolled individuals, but inconclusive relationship with psychopathy (Blackburn, 1986; Blackburn et al., 2008; D'Silva & Duggan, 2010; Redondo et al., 2019);
- High impulse control and emotional inhibition (e.g., Blackburn, 1968; Brad et al., 2014; Frederiksen, 1975; Megargee, 1966; Megargee & Carbonell, 1993; Truscott, 1990);
- High defensiveness and desire to present self in a positive manner and free of clinical symptoms (e.g., Blackburn, 1968; Frederiksen, 1975; Megargee & Carbonell, 1993; Truscott, 1990);
- Difficulties expressing to other people their inner experiences, and relational aloofness (e.g., Henderson, 1983b; Lane & Spruill, 1980; Quinsey et al., 1983);
- Elevations in anger control scores on STAXI/STAXI-2, but anger profiles comparable to the general population (D'Silva & Duggan, 2010; Verona & Carbonell, 2003);
- Morally rigid, with a need for rules and structure (conforming) (e.g., Haven, 1972; Thebus, 2012; White, 1975);
- Conscientious, responsible, and achievement oriented (e.g., Megargee & Carbonell, 1993; White et al., 1973);
- Mixed findings about intropunitive and extrapunitive responding with some identifying overcontrolled individuals with convictions more likely to turn criticism inwardly (Du Toit & Duckitt, 1990) and others revealing no difference (Rosenzweig, 1978).

4.3.10 Forensic Characteristics

Studies that examined the forensic characteristics of legally sanctioned overcontrolled individuals have produced mixed results, and these are summarised in the following subsections.

4.3.10a Offending History

Some studies found that overcontrolled individuals had fewer criminal convictions than undercontrolled individuals (Blackburn, 1968, 1971; Verona & Carbonell, 2000; D'Silva & Duggan, 2010). Other studies found no significant difference in the total number of criminal convictions between over- and undercontrolled individuals who have offended (Blackburn, 1975; Henderson, 1982; Low & Day, 2015; Moran, 1986; Widom, 1978; Oljača et al., 2019). Blackburn (1975) found no difference between over- and undercontrolled individuals in the number of prior sexual convictions and convictions for acquisitive offences, and these findings were confirmed by McGurk (1981) and D'Silva and Duggan (2010).

Two studies cite findings comparing the juvenile offending histories of over- and undercontrolled individuals, and found overcontrolled participants had fewer juvenile convictions (Blackburn, 1975; D'Silva & Duggan, 2010). Females identified as overcontrolled had more prior convictions than undercontrolled women according to Rosenzweig (1978) and there were no differences found by Widom (1978) and Verona and Carbonell (2000).

The type, length, frequency, and patterns of sentencing have rarely been examined, and findings are inconclusive. Low and Day (2015) found that overcontrolled individuals received fewer prison sentences, as did Widom (1978). Quinsey et al. (1983) found no difference in the number of prison sentences, and Low and Day (2015) found no difference in the number of community orders received. Worling (2001) found subtype differences in criminal propensity for men with sexual convictions, with the unusual/isolated overcontrolled subtype found to be more criminally inclined and highly likely to recidivate. Low and Day (2015) found lower rates of recidivism amongst overcontrolled individuals who were currently serving a sentence for a violent offence.

4.3.10b Violent Offending History

No difference in the chronicity of violent offending between over- and undercontrolled groups was found by Brad et al. (2014) or Moran (1986), but these two studies used non-standard OHS cut-off scores to assign participants to over- and undercontrolled groups, which has already been identified as an unreliable approach for assigning comparison groups. Other studies using a range of more reliable sample assignment methods found that overcontrolled individuals had fewer prior convictions for violent and destructive offences than undercontrolled samples (Blackburn, 1968, 1975; McGurk, 1981; Jensen, 2003; Lane & Kling, 1979; Megargee, 1966; Verona & Carbonell, 2000). Whether these violent offences were a one-off, as posited by Megargee (1966), or persistent spikes in an overall non-violent profile has not been examined.

Major discharges of extreme and lethal violence by overcontrolled individuals have been confirmed (Henderson, 1982, 1983b; McGurk, 1981; Hershorn & Rosenbaum, 1991; Lane & Kling, 1979; Lane & Spruill, 1980; Megargee et al., 1967; Verona & Carbonell, 2000). Henderson (1982) found subtype differences, with violent offending infrequent and extreme for the inhibited but not the controlled overcontrolled subtype. No difference between groups in violence severity was found by Low and Day (2015) or Hoppe and Singer (1977), and again, sample selection in these two studies may have skewed the results to confirm the null hypothesis. Low and Day's (2015) sample was specially selected for treatment and included proportionately more (75%) of the moderate-risk individuals attending a medium-intensity violence-reduction treatment programme. Hoppe and Singer (1977) compared men convicted with EA violent offences (proxy overcontrolled group) with men convicted of sexual offences and non-violent offences. The assumption underlying the comparison group assignment in this study has been disconfirmed, as overcontrol is not just a violent-offending phenomenon, and overcontrolled individuals would be expected in all of Hoppe and Singer's comparison groups.

Megargee (1966) hypothesised that prolonged provocation resulting in an accumulation of aggressive urges, hostility, and anger were distal antecedents for subsequent violent offences committed by overcontrolled individuals. Blackburn (1968) confirmed that overcontrolled forensic in-patients in this sample were typically unaggressive, and when they were aggressive it occurred only after prolonged or repeated provocation. Armstrong (1982), however, found no correlation between the degree of provocation and the degree of assault for overcontrolled

individuals. Psychometric assessment using the Psychological Inventory of Criminal Thinking Styles revealed that overcontrolled individuals with convictions had a weak, absent, or hidden criminal belief system and did not overtly express thoughts of a proactive or planned criminal nature (Low & Day, 2015). Chambers et al. (2009, 2011) studied male and female pathways to violent offending, analysing interviews using Strauss and Corbin's (1998) approach to grounded theory. Chambers et al. (2009, 2011) identified two overcontrolled "pathways" (4 and 5) to violent offending. In summary, Chambers et al. (2009, 2011) identified that both subtypes identified as overcontrolled evidenced a long build-up to violent offending. One subtype (Pathway 4) suppressed for an extended period, and the second subtype (Pathway 5) ruminated on perceived slights for prolonged periods, which appeared to increase instigation to offend and undermined inhibitions against offending. Chambers et al. (2009, 2011) concluded that overcontrolled participants' prolonged rumination acted like a kind of implicit and explicit planning process.

4.3.10c Institutional Behaviour

Studies examining the institutional behaviour of overcontrolled individuals are rare and the findings are mixed. In line with Megargee's (1966) theory, overcontrolled individuals have been found to be less aggressive and less likely to engage in assaults on other peers and staff in prison (DeLisi et al., 2010; Megargee, 1966; Megargee & Carbonell, 1993). The frequencies of institutional misconduct and negative attitudes towards staff were also lower for overcontrolled compared to undercontrolled individuals (DeLisi et al., 2010; D'Silva & Duggan, 2010; Du Toit & Duckitt, 1990; Frederiksen, 1975; Haven, 1972; Thebus, 2012). Other studies found no difference in institutional behaviour, authority conflict, or prison adjustment (Jensen, 2003; Moran, 1986; Megargee & Carbonell, 1993; Verona & Carbonell, 2000). Sexual misconduct in prison did not differ between over- and undercontrolled individuals (DeLisi et al., 2010). Disentangling the findings from these studies is difficult, as there were several confounding variables such as age, context, and measurement differences across studies. Heterogeneity in the operationalisation of outcome variables, prison adjustment, and general misconduct also hindered synthesis. As a tentative summary, those identified as overcontrolled did engage in institutional misconduct and had conflict with authority, but the

majority of violent and destructive institutional behaviours are likely committed by individuals identified as undercontrolled.

4.3.10d Victim Characteristics

Overcontrolled males who offended were more likely to be alone with a known victim, such as a relative or partner (Blackburn, 1968, 1971; Hershorn & Rosenbaum, 1991; Howells, 1983; Megargee, 1966; McGurk, 1981; Worling, 2001). Frederiksen (1975) found that female overcontrolled perpetrators were more likely to attack strangers, but Rosenzweig (1978) found no difference in victim type between over- and undercontrolled females in prisons. There were no differences in victims' age and sex between over- and undercontrolled groups (McGurk, 1981; Worling, 2001). Post-offence construing of victims by overcontrolled individuals, elicited from repertory grid analysis, was often idealised and overly positive (Howells, 1983). Chambers et al. (2009, 2011), using interviewing, also found idealised post-offence construing amongst one overcontrolled pathway to violent offending but not the other.

4.4 Discussion

The first review objective was to take stock of the extant literature. The preliminary quantitative synthesis of the overcontrol and offending literature from 1962 to 2019 identified 120 published articles and unpublished papers, with 49 papers selected for examination. Publishing trends suggest that Megargee's ideas became less popular after the 1990s, with over half of the selected papers published over 30 years ago. Criminologists and psychologists produced the most papers, with many authors producing only one published paper or authoring a PhD thesis that was not followed up in post-doctoral research.

Population and setting analysis of the included studies revealed a sampling over-representation of incarcerated white males convicted of violent offences. Adult male samples stemmed mostly from UK high-security prisons/hospitals and USA prisons, and all but one juvenile male sample and all female samples were from North America. Cross-sectional and comparison studies using quantitative data were the most prevalent study designs, with only two qualitative studies and one mixed-methods study in the review sample.

The second review objective was to identify the proportions of overcontrolled and undercontrolled individuals in forensic samples. The cross-sectional studies extracted from the current literature search typically identified two superordinate clusters, overcontrolled and undercontrolled, with some studies including a third cluster, resilient/regulated. This review suggests that, on average, one in three people who have committed offences may be overcontrolled, with higher ratios expected in specialist high-security treatment services (Blackburn, 1975, 1986, 1996; Blackburn et al., 2008; Henderson, 1982). Cross-sectional studies have consistently identified two overcontrolled subtypes, and both these subtypes were characterised by normal personality profiles, high defensiveness, and high inhibitory control. Low to high levels of affective distress and interpersonal difficulties were identified depending on the overcontrolled subtype. The controlled/repressor subtype consistently reported low levels of psychopathology and low emotional tension/distress on a range of personality measures. The inhibited/suppressor subtype was characterised by moderate–high anxiety, high depression, lower dominance, and a tendency to turn hostility onto self. The inhibited/suppressor subtype also experienced extreme shyness, social anxiety, and elevated introversion, and struggled with managing relationships. Whether these are truly distinct subtypes or rather reflect an overcontrol spectrum with the inhibited/suppressor subtype at the more extreme ranges of maladaptive overcontrol needs clarification.

Future forensic cross-sectional studies should aim for larger samples and use similar measures, where possible, across forensic, clinical, and general-population studies to help solidify our understanding of maladaptive overcontrol. Many participants in the selected studies were not clustered or allocated to any of the comparison groups. Conversely, some studies assigned everyone in the sample to either an over- or undercontrolled subgroup, with no mention of a resilient/regulated group. This suggests that the clustering methods may not be accurately capturing the breadth of personality functioning in offending populations. Additionally, those studies that used at least two clustering techniques with the same participants produced slightly different clustering results. This confirms thinking that personality prototypes have fuzzy, rather than discrete, borders (Chapman & Goldberg, 2011). A lack of standardisation in the clustering procedures, such as the cut-offs used to confirm cluster replicability, confirms Bohane et al.'s (2017) findings in a systematic review of overcontrol in non-forensic populations. Bohane et al. (2017) commented that “Herzberg and Roth’s (2006) algorithms for

classifying smaller samples, not dissimilar to the way in which questionnaires are based on representative sample norms, may be an alternative approach to assigning individuals” (p. 80). Standardising cut-off criteria for cluster selection would help the synthesis of results and comparisons across samples. Bohane et al. (2017) recommended a Cohen’s kappa internal replication index of ≥ 0.60 but also queried whether this may be too conservative.

The labels used to define subtypes appear to be at the behest of the author, and the lack of coherence and conceptual clarity in labelling overcontrolled subtypes is confusing and means that interesting variations within overcontrolled populations and between cultures may be missed. Bohane et al. (2017) recommended that “future research should carefully consider the constellation of personality dimensions within each cluster before determining how well they replicate previous findings” (p. 83). Applying this principle to labels for overcontrolled subtypes in offending populations, DeLisi et al.’s (2010) descriptors best reflect the findings from this review, as high inhibitory control (high restraint) consistently discriminated overcontrolled from undercontrolled samples, regardless of sample assignment method and study design. The level of distress or clinical impairment consistently differentiated between overcontrolled subtypes, that is, high reported distress (inhibited/suppressor) and low reported distress (controlled/repressor).

The next objective was to examine the posited biotemperamental, socio-developmental, and coping characteristics posited by Lynch, (2018a) to differentiate between over- and undercontrolled individuals. Biotemperamental biases outlined in Lynch’s, (2018a) theory have not been directly tested, and this is a major gap in existing research. Socio-developmental experiences have also rarely been examined, but the existing findings provide very tentative support for Lynch’s hypothesis that sociobiographical feedback may reinforce overcontrolled tendencies. A history of childhood abuse was present for both over- and undercontrolled individuals with convictions, with a trend towards overcontrolled individuals experiencing more emotional neglect. Again, this conclusion is speculative in the absence of an extensive body of work. Environmental contingencies around attainment, working hard, and doing well in mainstream society were parental messages promoted by the caregivers of overcontrolled individuals with convictions. Overcontrolled individuals with convictions were typically found to be highly socialised and better educated, and they had attained more work experience and

skills prior to imprisonment (Haven, 1972; Megargee, 1966; Megargee & Carbonell, 1993; McGurk, 1981; Widom, 1978). This trend supports Lynch's (2018a) theoretical hypothesis, but it requires more testing.

The findings from the cross-sectional and comparison studies converge around similar personality and coping themes. Overcontrolled individuals in forensic samples were more likely to exhibit personality traits associated with Cluster A (schizotypal, paranoid, and schizoid) and Cluster C (dependent, avoidant, obsessive-compulsive, and passive-aggressive), whereas Cluster B traits characterised undercontrol (borderline, narcissistic, and histrionic). Clinical and general-population studies investigating overcontrol found a similar trend (Bohane et al., 2017). The discriminative potential of an ASPD diagnosis had previously been identified in general-population studies (Morizot & Le Blanc, 2005; Turner et al., 2014), but this finding was not confirmed in forensic samples. The high prevalence of ASPD and antisocial traits, especially amongst those referred to psychiatric hospitals, probably accounts for this divergence (Foyston et al., 2019).

Megargee's hypothesis that maladaptive overcontrol is a disorder of excessive anger regulation has not been confirmed, as overcontrolled individuals with convictions reported similar anger profiles to general-population STAXI normative samples (D'Silva & Duggan, 2010; Low & Day, 2015; Redondo et al., 2019; Verona & Carbonell, 2003). The findings from this review indicate that overcontrolled hostility, as it is conceptualised in the OHS scale, was not a consistent characteristic of maladaptive overcontrol in offending samples (Rawlings, 1973; Truscott, 1990; Salekin et al., 2002). High impulse control, emotional inhibition, and high defensiveness appear to consistently characterise overcontrolled individuals in forensic samples, regardless of research design, measures used, sample characteristics, and setting. Other promising avenues for further research based on this review are psychological constructs such as moral rigidity, need for rules and structure (conforming behaviours), hypervigilance, excessive conscientiousness, assertiveness deficits, negative self-evaluations, and self-blame.

Megargee (1966) hypothesised that individuals who committed single-episode or one-off extreme violent offences were likely to be overcontrolled, whereas undercontrolled individuals would more likely engage in repeated violent offending of moderate severity. This review indicates that overcontrolled individuals are more likely to commit infrequent but potentially

lethal violent offences against someone they already know. The factors driving this offending are relatively unknown at this time. Chambers' (2009, 2011) qualitative analysis of different pathways to violence provides some insight, as does Howells' (1983) repertory grid analysis of post-offence construing. Tentatively, it is posited that there may be subtype differences with one overcontrolled subtype idealising victims and the other subtype demonising victims (Chambers et al., 2009, 2011; Howells, 1983). Overcontrolled individuals who idealised victims typically reported that the ending of the relationship triggered mental instability and a highly emotional momentary loss of control that they immediately regretted. Overcontrolled individuals who demonised victims believed their victim deserved what they got based on their negative perception of the victim's past behaviour. This latter pathway reflects the hypothesis that high moral certitude, self-righteous indignation, and rumination may drive some, but not all, offending by overcontrolled individuals (Bacon et al., 2020; Hamilton et al., 2018). Hempel, Rushbrook, O'Mahen & Lynch, (2018c) also implicate the role of "unhelpful envy ... it is an important emotion to understand because it can prompt passive-aggressive and sometimes overtly aggressive behaviour. Individuals with overcontrol are more likely to hold grudges and believe that it is morally acceptable to punish a wrongdoer" (p. 139). Coping characteristics, such as rumination, envy, moral certitude, grudge holding, resentment, and bitterness remain relatively untested in forensic overcontrolled samples.

The studies identified by this review showed little control for bias, even after excluding the case studies, opinion papers, and studies where the methodology was unclear (Biro et al., 1992). The biases identified in the selected studies are outlined in the following paragraphs.

Population and sampling bias: Many of the above findings from cross-sectional studies are based on relatively small samples that are not representative of forensic populations. Thebus (2012) is an outlier ($N = 16,341$): when this study is excluded, the average of the sample sizes in all the other studies is $M = 146$ participants (ranging from 17 to 967). Few studies used randomisation, individuals with literacy and lower intellectual functioning were often excluded, adult males were over-represented, and some studies only included white participants. Men convicted of violent offences were also over-represented in the eligible studies, even though the evidence suggests that overcontrol is probably a general personality characteristic evident in non-forensic populations and samples of people convicted of a broad

range of offence types. For instance, overcontrolled samples have been identified in samples who have been convicted of non-violent offences (Henderson, 1983b), sexual offences (Worling, 2001), and forensic psychiatric populations with mixed offending profiles (Blackburn et al., 2008). Overcontrolled samples have also been identified in longitudinal studies where samples are drawn from the general population (Bohane et al., 2017), clinical samples (Herzberg & Roth, 2006), and prison officers (McGurk & McGurk, 1979). Future research needs to assess more heterogeneous populations comprising people of different sexes, races, and ethnicities, and also include other types of offending behaviour beyond violence.

Response bias: Response rates were often not reported, and participants either self-selected or may have felt mandated to engage in the assessments as these were part of the institutions' admission processes.

Group assignment was compromised in the selected studies due to measurement bias, heterogeneity of measurement, and a lack of consensus on cluster-analytic standards. There is no validated measure of maladaptive overcontrol and little agreement about appropriate measurement of potential forensic cases. Comparison studies therefore used proxy measures of over- and undercontrol based on Megargee's conceptualisation, such as levels of overcontrolled hostility, expert-rater opinions, and severity and chronicity of violent offending. The OHS, a popular measure in the selected studies, has demonstrated poor reliability and validity. It also has an inherent racial bias, with African Americans more likely to be classified as chronically overcontrolled (Hutton et al., 1992). Even in best-case scenarios where high scores (≥ 70) on the OHS equated to maladaptive overcontrol, a low OHS score does not measure undercontrol; therefore, meaningful comparison groups cannot be identified using this method. Similarly, assigning over- and undercontrolled groups using violent offences is not supported by the existing research. Neither the severity of the violent offence ("extreme assault") nor the chronicity of violent offences ("one-off" or "single episode") were reliable markers for overcontrol. A combination of low chronicity and high severity of violent offences, particularly within selective samples convicted of IPV and homicide only, appear to be more promising correlates of maladaptive overcontrol in forensic populations. Nevertheless, overcontrol appears to traverse the spectrum of offending behaviour, and therefore the utility of any study relying on violent offences to assign comparison groups will be limited.

Measurement bias: Many studies used retrospective analysis of pre-existing data often collected by others; more longitudinal primary data collection is needed. Biases in data drawn from clinicians' reports, such as interpretation of interviews, observations, and clusters, is likely. Self-report data from overcontrolled individuals may also be susceptible to social-desirability bias. A combination of sources that can be triangulated may be more effective when studying overcontrolled populations.

The search strategy was limited by having only covered overcontrol from a specific theoretical standpoint and within legally sanctioned samples. This focused review has allowed for a detailed discussion of overcontrol in forensic populations, and the results point towards the need for further research examining the aetiology of overcontrol in forensic populations, and how this group may differ from undercontrolled counterparts.

4.5 Implications of the Systematic Review

The current literature review has highlighted many implications for both forensic practice and research, and this will be discussed in more detail in the final chapter. From the research perspective, this systematic review revealed that considerable work is required to understand both the forensic and clinical characteristics of overcontrol in forensic populations. Specifically, detailed examinations of the forensic history of overcontrolled individuals, identified using the latest personality-based criteria, would help draw a line under some of Megargee's hypotheses – in particular that overcontrol is a “violent offender” type as opposed to a personality characteristic associated with a range of external behavioural expressions, and overcontrolled individuals with convictions are typically less antisocial than their undercontrolled counterparts. Lynch's (2018a) concept of overcontrol, which has been confirmed in clinical populations (Bohane et al., 2017), needs to be verified in a forensic sample. The biotemperamental biases and socio-emotional functioning factors posited by Lynch, (2018a) need verification amongst people with convictions, and there is also a need for confirmation of the historical and contemporary socio-environmental experiences that perhaps shape and perpetuate maladaptive overcontrol.

Chapter 5: Re-examining Megargee's Overcontrolled and Undercontrolled Violent-Offending Typology

The idea that some people with convictions have too much self-control runs contrary to the dominant thesis in forensic psychology, which conceives low self-control as a critical risk factor associated with criminal behaviour. Relying on a sample of forensic in-patients from a high-security hospital in the UK, this chapter tests Megargee's seminal description of overcontrol. Megargee's (1966) posited differences between over- and undercontrolled individuals in terms of overall patterns of offending, patterns of violent offending, antisocial personality functioning, and contextual variables linked to offending behaviour will be studied.

5.1 Introduction

Why did “the quiet and modest man [Anders Breivik] become peacetime Europe's worst mass killer” (Rayment, 2011), the “kind, caring, quiet man” [Stephen Paddock] commit mass murder in Las Vegas (Allen, 2017), or the “reclusive, painfully shy and intensely bright” student [Adam Lanza] kill his classmates (Alexander et al., 2012)? When a previously shy, reserved, and seemingly prosocial individual commits a completely out-of-character criminal act, it is a source of bewilderment to many practitioners and lay people. These individuals are unrepresentative of the dominant thesis that all (or most) violent acts stem from poor impulse control, emotion dysregulation, and low distress tolerance. These cases are not unusually atypical or rare anomalies, with as many as one in every three convicted prisoners potentially overcontrolled (as established by the systematic review in Chapter 4). Understanding what drives these seemingly prosocial individuals to engage in criminal behaviour and their pathways to offending is much needed and long overdue.

Two personality-based pathways to violent offending were proposed by Megargee (1966, 1996). The *undercontrolled aggressive* person, according to Megargee (1996), has low inhibitions against aggressive behaviour, has lots of prior experience of successfully using aggression (high habit strength) to meet their goals, and the physiological and psychological sources that energise their aggression are easily provoked. The *undercontrolled aggressive* person was thought by Megargee (1966) to readily use the mechanism of displacement and

find a substitute target for aggression if personal, pragmatic, or situational factors impeded acting-out in the immediate context. They may also satisfy their urge to use aggression by engaging in a less severe aggressive response against the original frustrating agent if the situation hinders acting upon the actual intensity of the aggressive urges. Megargee (1966) hypothesised that diagnostically higher levels of psychopathy and antisocial/dissocial personality disorder would also be anticipated amongst the undercontrolled aggressive violent offending subtype.

Megargee's (1966) other subtype, *chronically overcontrolled*, seems to capture the anecdotal descriptions of the previously shy, reserved, and seemingly prosocial individual who commits a completely out-of-character criminal act. Megargee (1966) speculates that habitual inhibition prevents impulsive aggressive behaviour amongst overcontrolled individuals, but over time, excessive anger inhibition causes an accumulation until a person eventually breaches their threshold of control, resulting in a violent crime. In these specific situations, the reaction potential to use aggression is thought to increase dramatically, resulting in occasional but extreme violence, and even homicide (Megargee, 1966, 2011). Based on Megargee's ideas, one would expect differences between over- and undercontrolled individuals' patterns of offending and personality functioning.

5.1.1 Patterns of Offending

Overcontrolled individuals are thought to be highly inhibited in the expression of a wide range of behaviours and emotions, and they are often described as achievement oriented, employable, conscientious, highly, perhaps over, socialised, and at least outwardly conforming (Lynch, 2018; Hamilton et al., 2018; Megargee, 1966, 2011). These personal attributes and high self-control are generally considered protective factors against negative life outcomes, but too much self-control is also associated with a chronic sense of emotional loneliness and alienation from others (Lynch, 2018a). Social exclusion appears to bode less well for mental health and prosocial adjustment (Winstone, 2016), and not surprisingly, many overcontrolled individuals have been identified in forensic and mental health populations (Blackburn et al., 2008; Bohane et al., 2017). For instance, the cross-sectional studies reviewed in Chapter 4 concluded that as many as one in three prisoners and potentially half of forensic in-patients could be characterised as overcontrolled.

Differing offending profiles for over- and undercontrolled individuals have been identified in longitudinal studies, with undercontrolled individuals exhibiting earlier onset and more chronic patterns of offending than overcontrolled individuals (Denissen et al., 2008). Examination of the criminal histories of over- and undercontrolled individuals confirmed the presence of fewer juvenile convictions (Blackburn, 1975; D'Silva & Duggan, 2010), fewer criminal convictions (Blackburn, 1968, 1971; D'Silva & Duggan, 2010; Verona & Carbonell, 2000), and fewer prison sentences among those who were categorised as overcontrolled (Low & Day, 2015; Widom, 1978). In line with Megargee's theory, overcontrolled individuals were less habitually violent. Low and Day (2015) also found that overcontrolled individuals convicted of a violent offence scored much lower than undercontrolled individuals on psychometrics measuring criminal attitudes, thinking, and beliefs. Qualitative research with males and females convicted of violence similarly identified an absence of positive attitudes towards offending and use of violence in overcontrolled clusters (Chambers et al., 2009, 2011). Some studies, however, found no significant differences between over- and undercontrolled individuals in the total numbers of criminal convictions, prison sentences, and community orders received (Blackburn, 1975; Henderson, 1982; Low & Day, 2015; Moran, 1986; Quinsey et al., 1983).

As identified in Chapter 4, variations in subsample allocation methods as well as an over-reliance on unreliable methods, such as the Overcontrolled Hostility Scale (OHS), may account for these inconsistencies. Subtype differences in criminal propensity for overcontrolled men with sexual convictions were also identified, with the *unusual/isolated* overcontrolled subtype found to be more criminally inclined and highly likely to recidivate compared to the *reserved* overcontrolled type (Worling, 2001). Responses to temporary release and community orders have never been tested, but high social conformity – thought to be indicative of overcontrol (Lynch, 2018a) – may indicate greater compliance and by default fewer breaches of community sentences and supervision arrangements, and lower recidivism. Low and Day's (2015) paper is the only report of a study comparing recidivism rates for over- and undercontrolled individuals, and this confirmed lower rates of reoffending amongst overcontrolled individuals previously convicted of a violent offence.

Megargee's conceptualisation of the chronically overcontrolled subtype suggests these individuals do not readily engage in aggressive, destructive, or violent behaviour. Research has

confirmed differences in the chronicity of violent offending, with overcontrolled individuals having fewer violent convictions than undercontrolled groups (Blackburn, 1968, 1975; McGurk, 1981; Jensen, 2003; Lane & Kling, 1979; Megargee, 1966; Verona & Carbonell, 2000). Some studies, however, failed to find the expected differences in violent offending rates between over- and undercontrolled individuals (Brad et al., 2014; Moran, 1986; Truscott, 1990). Poor comparison-group identification and measurement bias in these three studies may explain the contradictory findings. For instance, Brad et al. (2014) and Moran (1986) used the OHS to assign individuals to over- and undercontrolled comparison groups, despite its poor reliability and inability to identify respondents as undercontrolled (Walters & Greene, 1983). Examination of the overcontrolled samples in all three of these studies also revealed that many participants in the overcontrolled group failed to meet the OHS cut-off criterion (T -score ≥ 70) for maladaptive overcontrol. For instance, only five out of 20 individuals in Truscott's (1990) overcontrolled group met the recommended OHS T -score ≥ 70 , and the other two studies used cut-off scores below the recommended T -score ≥ 70 to identify the overcontrolled subsamples.

Megargee's (1966) idea that overcontrolled individuals engage in more extreme and lethal violent offending has been consistently confirmed (Henderson, 1982, 1983b; McGurk, 1981; Hershorn & Rosenbaum, 1991; Lane & Kling, 1979; Lane & Spruill, 1980; Megargee et al., 1967; Salekin et al., 2002; Verona & Carbonell, 2000). Whether these violent offences are one-off offences, as posited by Megargee (1966), or persistent spikes in an overall non-violent profile has rarely been examined. Using cluster analysis, Henderson (1982) classified 105 prisoners into four over- or undercontrolled subtypes and found that low-frequency, extreme violent offences characterised the *inhibited* but not the *controlled* overcontrolled subtype. Contrary to the general trend, one study found no difference between over- and undercontrolled groups in the severity of violent convictions (Low & Day, 2015). Sampling bias in this study may have skewed the results to confirm the null hypothesis, as proportionately (75%) more of the sample were moderate-risk individuals attending a medium-intensity violence-reduction treatment programme as opposed to high-risk individuals, who may have engaged in more severe and chronic violence. Differences between over- and undercontrolled individuals, in terms of the chronicity and severity of violent offending, are therefore anticipated.

5.1.2 *Situational and Victim Variables*

The reaction potential for violence, according to Megargee (1966, 2011), is mediated by contextual variables, suggesting that specific situational and victim variables are associated with overcontrolled individuals' choices to offend. Megargee theorised that overcontrolled individuals have strong prohibitions against overt aggression and inferred that their use of violence would probably occur in private against someone known to them. As expected, overcontrolled males who offended were more likely to be alone with a known victim such as a relative or partner (Blackburn, 1968, 1971; Hershorn & Rosenbaum, 1991; Howells, 1983; Megargee, 1966; McGurk, 1981; Worling, 2001). The victims' age and sex did not discriminate between over- and undercontrolled individuals in male and female samples with convictions (McGurk, 1981; Worling, 2001; Rosenzweig, 1978). Frederiksen (1975) also failed to confirm the victim type hypothesis, as female overcontrolled perpetrators in their sample were more likely to attack strangers. The roles of other potential situational variables that may mediate reaction potential are currently untested, such as use of weapons, presence of co-defendants, or drug use. In addition, mixed results have been identified regarding the role of alcohol in the overcontrolled pathway to offending and as proximal antecedents to choices to offend (Frederiksen, 1975; Megargee & Carbonell, 1993; Redondo et al. 2019).

5.1.3 *Personality Disorder*

Megargee's hypothesis about differences in antisocial personality functioning between over- and undercontrolled individuals has produced mixed results, with perhaps measurement variability accounting for differing results. Similar levels of clinical psychopathy, as measured by the Psychopathy Checklist-Revised (PCL-R), were found amongst over- and undercontrolled forensic in-patients (Blackburn et al., 2008; D'Silva & Duggan, 2010). Blackburn et al. (2008), however, found subtype differences, with undercontrolled in-patients exhibiting more PCL-R Factor 2 traits (antisocial and impulsive lifestyle), and the "controlled" overcontrolled subtype exhibiting more PCL-R Factor 1 traits (interpersonal and affective facets). Studies relying on self-report measures, such as MMPI and SHAPS, confirmed that overcontrolled individuals scored significantly lower on the psychopathic deviate subscale (Blackburn, 1986; Megargee & Carbonell, 1993; Widom, 1978). Research findings to date indicate that antisocial personality traits, including psychopathy, can be expected in both over-

and undercontrolled populations, although expressions of these antisocial traits may vary between groups.

Academic interest in Megargee's (1966) over- and undercontrolled typology has waned, with over half of the relevant research published before 1990. It is contended in this thesis that failure to consistently verify hypothesised clinical and forensic differences amongst overcontrolled compared to undercontrolled individuals has contributed to the abandonment of Megargee's ideas. The recent stock-take of the literature in Chapter 4 confirmed an overcontrolled pathway to offending and concluded that rejection of Megargee's thesis was premature. Sampling problems, study heterogeneity, poorly defined outcome variables, measurement bias due to an over-reliance on the OHS scale for comparison-group assignment, and sampling errors based on the use of violent offending history all contribute to inconsistent findings.

Understanding overcontrolled pathways to offending is imperative for effective formulation, treatment, and risk management, as well as the provision of precise, ethical, and cost-effective healthcare. For instance, overcontrolled individuals with convictions are more likely to be referred to – and often stay longer in – expensive forensic in-patient units, and whether this extended deprivation of liberties is necessary to protect the public is unknown (Blackburn et al., 2008; Pickersgill, 2013). Theoretically, Megargee's ideas are long overdue a systematic examination, especially using alternative sample-allocation methods that do not rely on the OHS or untested hypotheses about offence characteristics. This study intends to test Megargee's (1966, 2011) posited differences between over- and undercontrolled individuals' patterns of offending, in particular the hypothesised differences in the chronicity and severity of offending, contextual (situation and victim) characteristics, and antisocial personality functioning. Comparison groups for over- and undercontrol will be identified using personality-based criteria and the latest overcontrolled personality prototype criteria (Lynch, 2018a, Appendix D).

5.1.4 Hypotheses

The following hypotheses have been generated based on theory and a priori research findings, and these will be tested using a high-security forensic psychiatric in-patient sample.

Pattern of Offending: Overcontrolled individuals with convictions are thought to be more prosocial and less criminally inclined than their undercontrolled counterparts, and their patterns of offending and personality functioning will reflect these differences in antisocial tendencies:

1. Overcontrolled individuals will have been older than undercontrolled individuals when they received their first criminal conviction.
2. The total number of convictions – as juveniles, adults, and in total – will be lower for over- than undercontrolled individuals.
3. Overcontrolled individuals will have fewer sentencing dates than undercontrolled individuals.
4. Overcontrolled individuals will have shorter criminal careers than undercontrolled individuals.
5. Overcontrolled individuals will be more specialised and less criminally versatile than undercontrolled individuals.
6. Overcontrolled individuals will be more likely to comply with community supervision arrangements and community sentences than undercontrolled individuals.
7. Overcontrolled individuals will score lower on the PCL-R and PAI antisocial personality subscales.

Pattern of Violent Offending: Overcontrolled individuals will have less instigation to engage in violence and will exhibit low habit strength for violent behaviour, resulting in a pattern of violent offending that is less chronic than the typical pattern for undercontrolled individuals. If they offend violently, overcontrolled individuals are posited to commit more severe and potentially lethal violence. It is therefore hypothesised that:

8. Overcontrolled individuals will have been older than undercontrolled individuals when they received their first conviction for any violent offence.
9. The total number of violent convictions – as juveniles, adults, and in total – will be lower for over- than undercontrolled individuals.
10. Overcontrolled individuals will have fewer sentencing dates for violent offences than undercontrolled individuals.
11. Overcontrolled individuals will have larger gaps between convictions for violent offences than undercontrolled individuals.

12. Overcontrolled individuals will be more likely to commit an offence involving lethal violence (e.g., murder/manslaughter) than undercontrolled individuals.

Contextual Variables: Overcontrolled individuals' offending will occur in specialist situations, and it is hypothesised that:

13. Overcontrolled individuals will be more likely to enact violence against family members or people known to them rather than strangers.
14. Overcontrolled individuals will be more likely to enact violence when they are alone and in private with the victim.

5.2 Method

5.2.1 Sample

After data cleaning, the final sample consisted of 91 in-patients, with 39 (42.9%) classified as overcontrolled and 52 (57.1%) undercontrolled. The overcontrolled sample's mean age at admission was 32.5 years ($SD = 7.85$; range 20–54 years), and for the undercontrolled sample the mean was 30.4 years ($SD = 8.42$; range 18–50 years). Most of those in the sample were White British (93.4%, $n = 85$), with one person of mixed heritage and an Irish traveller in the undercontrolled group, and four minority-ethnic individuals in the overcontrolled group, specifically mixed heritage ($n = 2$) and Black British ($n = 2$). Participants were mostly single (90.1%, $n = 82$) at the time of admission, and both groups tended to have no children. The over- and undercontrolled groups were not significantly different regarding recorded history of severe alcohol abuse/dependency $\chi^2(2, N = 91) = 2.84, p = .242$, but those in the undercontrolled group were significantly more likely to have a history of severe drug abuse/dependency $\chi^2(2, N = 91) = 9.60, p < .008$. The mean length of stay in the high-security hospital for the 91 participants was 75.8 months ($SD = 53.9$) for the undercontrolled sample and 89.8 months ($SD = 50.5$) for the overcontrolled sample. This difference was not statistically significant.

5.2.2 Sources of Information and Data-Collection Procedure

This study is based on analysis of secondary data drawn from pre-existing clinical databases containing routinely collected clinical and forensic information. Pre-existing data were used to prevent any unnecessary harm to participants that may be caused by asking about aspects of their lives that could be distressing and interfere with their ongoing treatment. Use of official sources also enhanced the reliability of information and ensured that only officially recognised criminal behaviour was collated.

Information on the treatment database was generated from a retrospective review of file information. This contained the official record of prior convictions on the Police National Computer (PNC), supplemented with forensic history information outlined in a social worker's admission assessment report. The routinely collected data were extracted and input onto the evaluation database by two research assistants working on the Unit under the supervision of a Registered Psychologist. A structured data-collection protocol (see Appendix E, 9.5.2) was developed to ensure that consistent information was drawn from file information, and variables from the following sections were selected for this study: "Demographic Variables", and "Forensic Background Information". An anonymised version of the selected variables relevant to the current study were obtained, and additional information about missing data were requested from the database administrator at the point of data cleaning.

5.2.3 Dependent Variable

The dependent variable was a dichotomous variable indicating whether an individual was classified as over- or undercontrolled, and this was based on a two-stage process involving formal diagnosis and expert rating. The sample assignment method is outlined in detail in Chapter 3 (§3.6.4, p. 102). The final sample of 91 consisted of 52 (57.1%) undercontrolled and 39 (42.9%) overcontrolled forensic in-patients.

5.2.4 *Independent Variables*

5.2.4a *Demographic Variables*

Anonymised demographic variables extracted from the original evaluation database for each individual included age at admission, nationality, ethnicity, admission date, discharge date, and marital status.

5.2.4b *Antisocial Personality Variables*

Antisocial personality disorder and psychopathy had been assessed using the Personality Assessment Inventory (PAI; Morey, 1991) and PCL-R (Hare, 2003), respectively. A request was made to extract any PAI test scores and PCL-R ratings logged on the pre-existing evaluation database.

PCL-R: The PCL-R was one of the standardised admission assessments administered during the first 24 weeks after admission to the specialist high-security forensic psychiatric hospital. The PCL-R interviews were conducted by a Registered Psychologist who had undergone specific formal training and who had formal authorisation in the clinical use of the PCL-R. The PCL-R ratings were based on clinical interviews, medical records, criminal record information drawn from the PNC, and staff observations regarding the patient's interactions with others. The PCL-R has well-established psychometric properties, including replicable factor structures, test-retest reliability, evidence for good inter-rater reliability, and convergent, divergent, and predictive validity, as well as general consistency across ethnicities (e.g., Harris et al., 2013; Hildebrand & de Ruiter, 2012; Salekin et al., 1996).

The PCL-R (Hare, 2003) is a 20-item checklist. Each item has four possible scoring choices (0, 1, 2, and omit): 2 indicates that the item definitely applies, 1 indicates that it may or may not apply, and 0 indicates that it does not apply. These scores quantify the degree to which the interviewee manifests a particular prototypical indicator of psychopathy, associated with affective, interpersonal, behavioural, and antisocial components (Hare, 2003). Factor 1 – labelled “interpersonal/affective” or “selfish, callous, and remorseless use of others” – identifies personality features associated with historical clinical descriptions of psychopathy (Cleckley, 1941/1988). Factor 2 – labelled “social deviance” or “chronically unstable,

antisocial, and socially deviant lifestyle” – captures behaviourally based symptoms and has been likened to the more defining features of ASPD criteria (Ogloff, 2006). Factors 1 and 2 are further divided into four underlying facets, but these scores were not consistently available and were therefore not requested of extraction. The total score can range from 0 to 40, and this reflects a dimensional measure of psychopathic traits. The PCL-R manual (Hare, 2003) states that a score of 30 or above confirms the diagnosis of psychopathy, but UK research states a score of 27 or higher qualifies this diagnosis in British forensic psychiatric samples (Cooke et al., 2004).

PAI: The PAI was administered by an assistant psychologist under the supervision of a qualified psychologist. This is a 344-item self-report measure with 22 scales, and these provide information relevant to screening of psychopathology (11 clinical scales), treatment engagement ($n = 5$), and validity ($n = 4$), and there are two interpersonal scales. Each item is rated on a 4-point *very true* to *false* scale. Based on our current hypotheses, the following PAI scales and subscales are of interest. The antisocial features scale (ANT) was designed to assess “personality and behavioural features relevant to the constructs of antisocial personality and psychopathy” (Morey, 1991, p. 18). Three subscales measure distinct facets of antisocial and psychopathic symptomatology. The ANT-Egocentricity (ANT-E) subscale measures self-centeredness, callousness, and remorseless behaviour, or “the pathological egocentricity and narcissism often thought to lie at the core of this disorder” (Morey, 1991, p. 72). The ANT-Antisocial Behaviours (ANT-A) subscale measures a self-report history of conduct problems and criminality. Finally, the ANT-Stimulus Seeking (ANT-S) subscale reflects “a tendency to seek thrills and excitement and low boredom tolerance” (Morey, 1991, p. 72). The PAI protocols were scored using a commercial computer program, and raw scores and *T*-scores ($M = 50$, $SD = 10$) from the computer output were recorded onto the clinical database. The alpha coefficients reported for this measure range from .73 to .81, indicating good levels of internal consistency reliability (Boyle & Lennon, 1994).

5.2.4c *Forensic History and Offence-Related Variables*

Forensic information included a full summary of each service user’s forensic history, and some contextual and victim variables associated with their index offence were requested for extraction from the service evaluation database. The coding manual (Appendix E, 9.5.2)

attached to the database stated that information in this section should be drawn directly from the PNC record, and in the absence of the original PNC record, the social worker's assessment report was recommended as this typically outlined a full forensic history drawn from a PNC record. If neither record was available, then the coding manual stated that the forensic section should be omitted, and a referral should be made to the assessment and treatment administrator to request the PNC record from the social worker manager. In the codebook, extractors were also instructed to check the social worker's report for any convictions received whilst resident in an institution, as these may have occurred after the PNC record was extracted.

Research assistant who extracted the data, placed the information on the service evaluation database, noting the date of each sentencing occasion and the actual legal descriptor for every conviction. These data provided a full record of a person's official convictions, and this was requested for extraction in an anonymised form. Contextual variables for the original violent or sexual index offence(s) were requested. These were categorical variables, and included victim under/over 18 years, victim known/stranger, victim male/female, co-defendant (yes/no), weapon used (yes/no), and level of harm to the victim (lethal/non-lethal). Non-lethal harm included severe bruising, broken bones, internal injuries, and/or hospitalisation of victim because of the crime. Lethal harm was victim death because of the crime. The PNC data had to be transformed to permit analysis in the current study, and each conviction was recoded into one of the 11 groups outlined in the official offence classification list used for counting crime in the UK:

1. Violence against the person
2. Public order
3. Possession of weapons
4. Miscellaneous crimes against society
5. Sexual offences
6. Burglary
7. Robbery
8. Theft
9. Vehicle offences
10. Arson and criminal damage

11. Drug offences

Two additional groups were added to the official offence list, namely “violence against the person” was split into lethal and non-lethal violence against the person for some analysis. Lethal violence was any offence in which the victim died, such as murder, manslaughter, or causing death by dangerous driving. Non-lethal violence against the person included all other violent offences outlined in the offence classification list. A “non-categorised” offence group was added to ensure completeness of the criminal record. Additional variables were calculated from the data available, such as age at first conviction, age at first violent conviction, age at first sexual conviction, and age at conviction for original index offence(s). The total number of prior violent convictions (including and excluding sexual offences), non-violent convictions, prior supervision failures (breaches of parole/conditional release, offences committed on bail, revocation of licence), and breaches of community orders (breaches of probation order/community treatment/detention and training order) were also calculated. These were obtained from the raw data using formulae in SPSS 23, and if this was not possible, hand tallying was conducted.

5.2.5 Procedure

Ethical approval was obtained for the study from Nottingham Trent University’s Business, Law and Social Sciences Research Ethics Committee (No. 2016/102), and Nottinghamshire Healthcare NHS Foundation Trust Research and Development Committee.

5.2.6 Data-Analytic Plan

Data were obtained in an Excel format and were converted to SPSS 23 format for the statistical analyses. Due to limitations in the data such as missing values, the dataset was subsequently cleaned and transformed to suit the current study. Thirty-five cases were removed, 32 had insufficient criminal history information, and three had no overcontrolled/undercontrolled classification. Other missing data were addressed by removing cases through a pairwise process from each analysis. Prior to analysis, the data were checked for normality and outliers. Outliers were present, but this was expected given the clinical nature of the research. Box plots and Kolmogorov–Smirnov tests revealed that the scores on some measures were not normally

distributed, and nonparametric statistics were used in these instances. Chi-square analysis, Mann-Whitney U tests, t -tests, and logistic regression analysis were employed to analyse the bivariate relationships between the independent variables identified above and the dependent variable, over- and undercontrolled personality.

5.3 Results

5.3.1 *Index Offences and Sentencing*

Upon admission, the sentence types being served by overcontrolled participants were: determinate sentences with a release date 53% ($n = 20$), life sentences with no specified release date 31% ($n = 12$), and hospital orders with no specified release date 16% ($n = 6$). For undercontrolled participants, the sentence types were: determinate sentences with a release date 70% ($n = 36$), life sentences with no specified release date 28% ($n = 14$), and hospital orders with no specified release date 2% ($n = 1$). There was a statistically significant difference in the type of original sentence that led to this period of incarceration, with the overcontrolled group less likely to have originally received a determinate sentence $\chi^2(4, N = 89) = 10.40, p = .034$.

Previous research has relied on the nature of the index offence for subsample allocation; again, this study does not support this allocation method. Participants' index offences (the offence immediately preceding this period of incarceration) typically included multiple convictions for both the overcontrolled ($M = 2.74, SD = 2.30$) and undercontrolled ($M = 2.79, SD = 1.82$) groups. Analysis of the most serious index offence conviction revealed that overcontrolled individuals ($n = 39$) were incarcerated for a range of offences and not just violence as Megargee (1966) proposed. At the point of incarceration, overcontrolled individuals ($n = 39$) had been convicted of: Violence Against the Person (41.0%), Sexual Offences (38.5%), Robbery (7.7%), Burglary (5.1%), Public Order (2.6%), Possession of Weapons (2.6%), and Arson and Criminal Damage (2.6%). As predicted, overcontrolled individuals ($n = 5$) were more likely than undercontrolled individuals ($n = 2$) to have committed a violent index offence that caused lethal harm, i.e., murder or manslaughter. Where participants had been given a determinate sentence for the original index offence(s), the mean sentence length for overcontrolled participants was 76 months ($SD = 44.0$) and for undercontrolled individuals it was 72 months ($SD = 40.2$). The mean tariff length for those serving a life sentence for the original index offence(s) was

83 months ($SD = 79.8$) for undercontrolled participants and 105 months ($SD = 59.2$) for overcontrolled participants. This difference in sentence length was not statistically significant.

5.3.2 *Patterns in Offending*

Patterns of offending, in particular the chronicity and severity of offending, are examined below. Firstly, the patterns of offending evident from all convictions are examined, then patterns of violent offending, and finally victim and contextual characteristics thought to influence overcontrolled individuals' decisions to offend. Bivariate analysis was conducted where the differences in the means and medians were considered substantial and warranted additional examination.

Pattern of Offending: Overcontrolled individuals are hypothesised to be more prosocial and less criminally inclined than undercontrolled individuals with convictions, and their patterns of offending and personality functioning will reflect these differences in antisocial tendencies. Statistics relating to the conviction histories of the individuals in the sample are shown in Table 6.

Table 6: Conviction History of Over- and Undercontrolled (OC and UC) Individuals

	UC M (SD)	OC M (SD)	t-test (df)
Age at first conviction (years)	14.3 (3.21)	16.5 (5.40)	$t(87) = -2.36, p = .020$
Total number of convictions	47.0 (30.70)	30.9 (29.75)	$t(89) = 2.50, p = .014$
Under 18 years	21.0 (22.29)	11.0 (15.48)	$t(80) = 2.28, p = .025$
Over 18 years	23.4 (22.04)	14.9 (12.99)	$t(80) = 2.01, p = .048$
Total Number of sentencing occasions	22.3 (15.79)	13.1 (14.15)	$t(88) = 2.85, p = .005$
Under 18 years	9.16 (9.88)	3.9 (5.21)	$t(78) = 2.84, p = .006$
Over 18 years	10.7 (10.33)	6.2 (4.83)	$t(78) = 2.35, p = .021$
Number of prior supervision failures	4.6 (5.80)	2.1 (3.19)	$t(81) = 2.30, p = .024$
Length of criminal career (years)	11.1 (6.86)	9.03 (8.08)	$t(81) = 1.28, p = .206$
Time between all convictions (months)	12.5 (11.17)	31.9 (43.13)	$t(78) = -2.96, p = .004$

Overcontrolled individuals were significantly older than undercontrolled individuals when they received their first conviction. As anticipated, the total numbers of convictions and sentencing occasions were significantly lower for over- than undercontrolled participants, and this trend held for juvenile and adult offending patterns. Overcontrolled individuals were also less likely than undercontrolled individuals to breach community supervision arrangements and community sentences. The offending profile over time was as predicted, with overcontrolled

individuals having shorter criminal careers, and the average gaps between convictions were significantly longer for overcontrolled than undercontrolled individuals. Overall, overcontrolled individuals' patterns of offending were less chronic than those of undercontrolled individuals.

5.3.3 Types of Convictions

The types of convictions (including index offence) of the over- and undercontrolled samples are outlined in Table 7.

Table 7: Offending History by Type of Conviction

	UC (<i>n</i> = 48) <i>M</i> (<i>SD</i>)	OC (<i>n</i> = 35) <i>M</i> (<i>SD</i>)	Test of Difference
Offence Classification Total Convictions			
Violence Against the Person	8.21 (8.39)	3.97 (4.08)	$t(80) = 2.76, p = .007$
Sexual	1.60 (2.92)	1.51 (2.47)	–
Public Order	2.40 (3.75)	0.97 (1.74)	$t(81) = 2.09, p = .04$
Possession of weapons	1.31 (1.35)	0.63 (1.33)	$t(81) = 2.29, p = .025$
Miscellaneous crimes against society	6.83 (6.47)	4.11 (4.75)	$t(81) = 2.11, p = .038$
Burglary	3.79 (4.78)	4.26 (7.69)	–
Robbery	1.10 (1.95)	0.71 (1.38)	–
Theft	3.94 (4.73)	2.29 (3.06)	$t(81) = 1.81, p = .07$
Vehicle offences & minor driving	2.92 (4.33)	1.66 (2.54)	–
Arson and Criminal Damage	4.69 (4.64)	2.54 (3.84)	$t(81) = 2.23, p = .028$
Drug Offences	0.13 (0.49)	0.03 (0.17)	–
Other non-categorised convictions	0.08 (0.28)	0.40 (1.88)	–
Criminal versatility (no. of offence types)	7.10 (2.20)	5.20 (2.85)	$\chi^2(9, N = 81) = 13.13, p = .134$

The offending histories of the final sample were extensive and diverse, with only one undercontrolled and three overcontrolled in-patients having received no convictions before their current index offences. Criminal versatility was the norm, with a mean of 7.1 out of 12 offence classifications for the undercontrolled group, and the overcontrolled group had a mean of 5.2 types. The overcontrolled group did not commit specialist one-off offences as predicted, and their overall offending pattern was not significantly different from that of the undercontrolled in-patients. There was no offence classification that appeared to define the overcontrolled sample, and the elevated burglary average was attributable to an outlier in the group, skewing results for this type of offending.

As predicted, undercontrolled individuals had significantly more convictions for violence against the person. They were also more likely to have convictions for public order offences, possession of weapons, miscellaneous crimes against society, and arson and criminal damage. Examples of “public order” convictions are: affray; common assault; and causing public fear, alarm, or distress. The category “miscellaneous crimes against society” included bail offences, breaches of community sentences/supervision, forgery, possession of false documents, handling stolen goods, perjury, and so on. All other differences in offence classification between over- and undercontrolled subsamples were not statistically significant.

Table 8: Antisocial Personality Functioning

	UC <i>M (SD)</i>	OC <i>M (SD)</i>
Antisocial Personality		
PCL-R – Total	26.9 (5.29)	27.5 (5.39)
PCL-R Factor 1	10.0 (3.24)	11.2 (2.43)
PCL-R Factor 2	14.8 (2.78)	14.4 (3.41)
Antisocial features (PAI: ANT) <i>T</i> -score	76.6 (15.90)	70.8 (12.27)
Egocentricity (PAI: ANT-E) <i>T</i> -score	65.6 (18.31)	60.7 (15.65)
Antisocial behaviours (ANT-A) <i>T</i> -score	79.2 (10.93)	76.4 (9.01)
Stimulus seeking (PAI: ANT-S) <i>T</i> -score	66.4 (19.38)	61.0 (15.79)

Antisocial Personality: All in-patients had been diagnosed with severe and enduring personality difficulties. Diagnostic criteria (DSM-IV/ICD10) for antisocial or dissocial personality disorder were available for 87 cases, and the criteria were met by 89% ($n = 33$) of the overcontrolled and 94% ($n = 47$) of the undercontrolled in-patients. The PCL-R and PAI data were available of 66 and 71 cases, respectively, and the average scores for the over- and undercontrolled samples are shown in Table 8.

As expected, there was no difference in the mean PCL-R total scores for overcontrolled and undercontrolled forensic in-patients. Unexpectedly, there was also no major difference in the mean scores for both groups on PCL-R Factor 1 and Factor 2. There was also no major difference in *T*-scores for the PAI antisocial features scale and subscales. Antisocial personality functioning as assessed by the PAI for both the over- and undercontrolled in-patient groups, *T*-scores were 1–2 standard deviations above the non-convicted populations and well above

average on the PCL-R (Hare, 2003). Bivariate analysis was not conducted, as the variation between groups was considered minimal.

5.3.4 *Patterns in Violent Offending*

The violent and sexual offending histories of the over- and undercontrolled samples are outlined in Table 9.

Table 9: Violent and Sexual Offending

Variable	UC M (SD)	OC M (SD)	t-test (df)
Age at first conviction (in years)			
Violence against the person (VAP)	16.9 (5.15)	19.5 (6.13)	$t(80) = -2.04, p = .045$
Sexual offence	19.9 (6.14)	22.9 (7.16)	$t(38) = -1.40, p = .17$
Total number of violent convictions			
Under 18 years	3.6 (5.46)	0.91 (2.07)	$t(80) = 2.78, p = .007$
Over 18 years	4.6 (5.51)	3.0 (3.90)	$t(80) = 1.41, p = .163$
Total no. of VAP sentencing occasions	5.7 (5.22)	2.5 (1.58)	$t(81) = 3.51, p = .001$
No. of assaults police/people in authority	1.2 (1.79)	0.4 (0.73)	$t(81) = 2.54, p = .013$
Ave. months between violent convictions	31.2 (33.88)	56.2 (51.20)	$t(69) = -2.47, p = .016$
Length of violent criminal career (years)	10.0 (7.84)	8.5 (7.12)	$t(74) = 0.89, p = .379$

Overcontrolled individuals were significantly older than undercontrolled individuals when they received their first conviction for a violence against the person offence (VAP; excludes sexual offences). As expected, the overcontrolled group had significantly fewer juvenile VAP convictions, but this between-group difference disappeared in adulthood (after 18 years). Overcontrolled individuals had significantly fewer appearances in court for VAP offences and were less likely to receive convictions for assaults on police, prison officers, and people in authority. The lengths of criminal career (time from first until last violent or sexual conviction) were similar for both groups; however, the time between sentencing dates for any violence conviction (VAP or sexual) was significantly greater for the overcontrolled group, and this difference was statistically significant.

5.3.5 *Victim and Situational Variables: Index Offence*

The proportion of “yes” responses to victim and situational characteristics variables linked to the most serious violent or sexual index offence are outlined in Table 10.

Table 10: Victim Characteristics and Situational Variables for Most Serious Index Offence

	UC	OC
	% (n)	% (n)
Victim < 18	23.4 (11)	20.0 (7)
Victim ≥ 18	78.3(36)	91.4 (32)
Male victims	66.7 (30)	57.1 (20)
Female victims	48.9 (23)	65.7 (23)
Victim known	44.4 (20)	40.0 (14)
Victim stranger	37.8 (17)	45.7 (16)
Co-defendant present (not alone)	20.5 (8)	17.1 (6)
Weapon present	63.8 (30)	60.0 (21)
Victim stabbed or shot	32.6 (15)	34.4 (11)
Victim died	8.9 (4)	19.4 (6)
Victim incurred non-lethal violence	62.2 (28)	64.5 (20)

The expectation that overcontrolled individuals would more likely enact violence against people alone was supported, but both over- and undercontrolled individuals had similar rates of co-defendants present, so this may not be a distinguishing characteristic. Overcontrolled individuals were proportionately less likely to know their victims than undercontrolled participants, and their victims were more likely to be female. The presence of weapons and their use in the index offence was similar for both over- and undercontrolled individuals, and there was a trend towards overcontrolled individuals being more likely to inflict lethal harm on their victims. Bivariate analysis was not conducted, as there were minimal differences in between-group percentages.

5.3.6 *Logistic regression*

A logistic regression was performed to assess the impact of offence-related variables (those which had been identified as significant in the bivariate analysis) that may increase the likelihood of being overcontrolled. The model contained ten independent variables: age at first conviction, age at first violent conviction, total number of convictions and total sentencing occasions, total number of violent convictions only prior to 18 years and total sentencing

occasions for violent offences, total number of convictions for miscellaneous crimes against society (MCAS), total number of convictions for arson and criminal damage, average time between sentencing occasions for any crime and only violent convictions.

The full model containing all predictors was statistically significant using the likelihood chi-square test, $\chi^2(10, N = 67) = 54.29, p < .001$, indicating that the model was able to distinguish between respondents who were over- or undercontrolled. Examination of influence and leverage graphs indicated there was no strong case to exclude any case, so all participants were included in the regression analysis. The model correctly classified 81.2% of cases, and explained between 44.5% (Cox and Snell Pseudo- R^2) and 59.6% (Nagelkerke Pseudo- R^2) of the variation between over- and undercontrolled individuals. Only three of the previously significant independent variables made unique statistical contributions to the model, namely total sentencing dates for any conviction, total convictions for crimes against society, and the average time (in months) between sentencing occasions for any crime. An examination of collinearity revealed some which would reduce statistical power, however VIF values for this model are mostly below 2.5 (tolerans $> .40$), with only total sentencing (VIF = 7.09) and total MCAS (VIF = 4.99) well above that. This means their unique effects are less precisely estimated than effects with low collinearity.

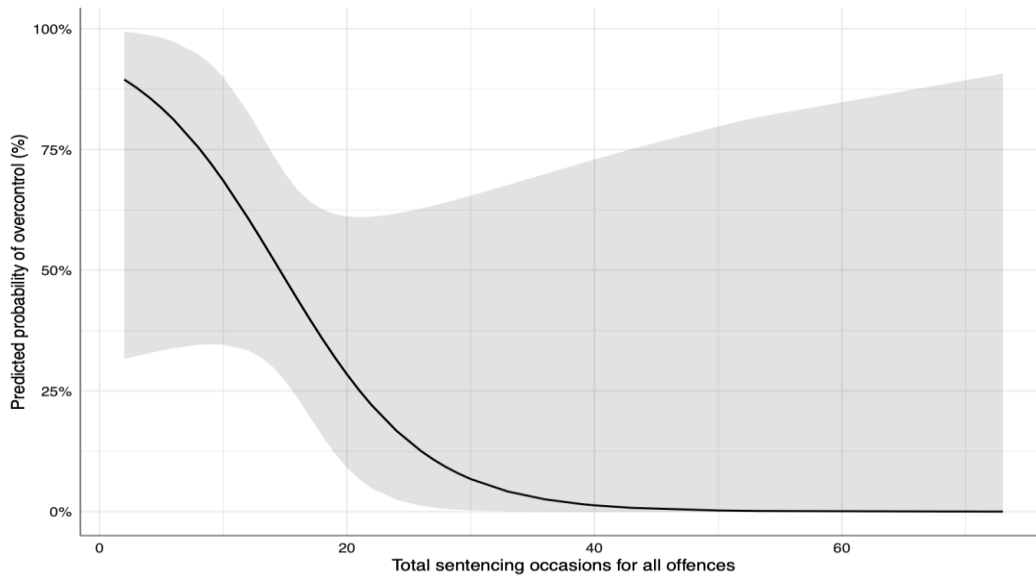


Figure 8: Probability of Overcontrol by Total Sentencing Occasions

Fewer sentencing dates for any conviction when other predictors are unchanged was predictive of being identified as overcontrolled, likelihood ratio test is $\chi^2(1) = 4.29$, $p = .003$. Figure 8 shows that the probability of being identified as overcontrolled was around 90% when a person had only one prior sentencing date when all other predictors were held constant.

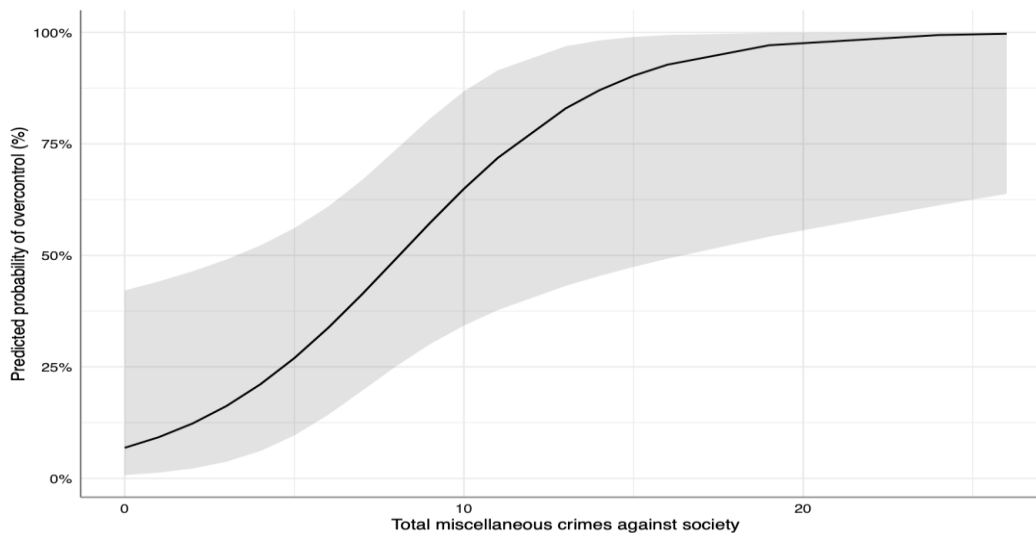


Figure 9: Probability of Overcontrol by Convictions for MCAS

Similarly, more convictions for crimes against society, was associated with a greater likelihood of being overcontrolled holding the other predictors constant. The likelihood ratio test is $\chi^2(1) = 7.024, p = .008$, and Figure 9 shows that the probability of being identified as overcontrolled was over 90% when a person had 20 miscellaneous crimes against society (MCAS) when all other predictors were held constant.

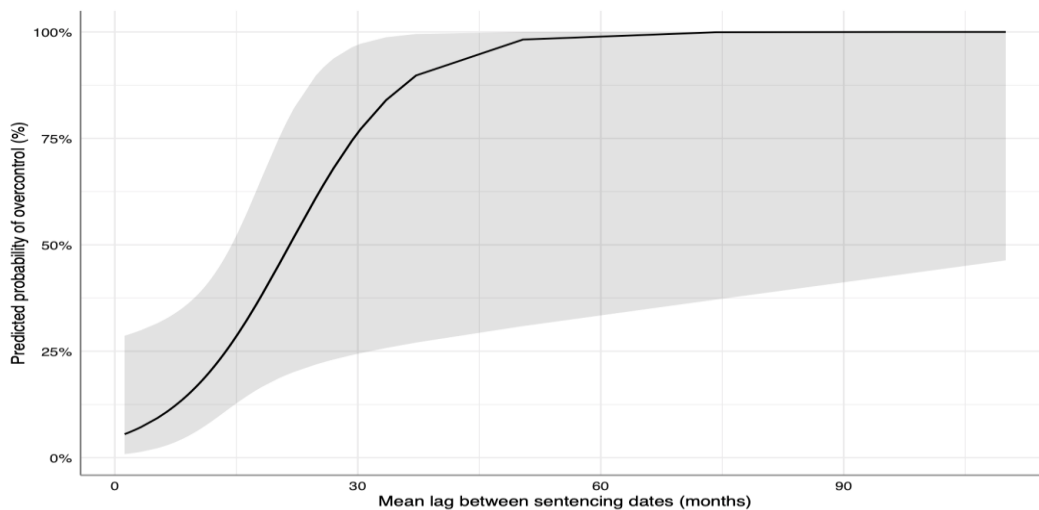


Figure 10: Probability of Overcontrol by Lag Time Between Sentencing Dates

Longer lag times between convictions was a strong predictor for overcontrol, and the likelihood ratio test is $\chi^2(1) = 6.002, p = .01$. Figure 8 shows that the probability of being identified as overcontrolled is 75% when there the average lag time is 30 months between sentencing dates.

5.4 Discussion

This study set out to explore Megargee's (1966, 2011) hypothesised differences in patterns of offending and antisocial personality functioning in a sample of 91 male forensic in-patients. Using the latest personality-based criteria for sample assignment, data from this pilot study provide additional support for the presence of an overcontrolled personality-disordered sample with convictions, with 43% of forensic psychiatric in-patients classified as overcontrolled on the basis of IPDE diagnosis and/or expert ratings. Blackburn and colleagues (Blackburn, 1971, 1975, 1986, 1996; Blackburn et al., 2008) reported comparable results using cluster-analytic techniques to classify a UK high-security in-patient sample. Demographically, over- and

undercontrolled in-patients were similar with respect to age and length of stay in prison/secure hospital.

5.4.1 Hypotheses

Official conviction data drawn from the PNC were obtained and subjected to detailed statistical analysis to discern offending patterns amongst over- and undercontrolled individuals. Hypotheses linked to offending – specifically patterns of general offending, contextual variables, and patterns of violent offending – and personality functioning were examined.

5.4.1a Offending

Patterns of Offending: Lynch, (2018a) and Megargee (1966) contended that overcontrolled individuals are fundamentally prosocial and highly socialised, reflecting wider theoretical arguments about the protective qualities of high self-control/overcontrol (Hirschi & Gottfredson, 1993). Overcontrolled individuals were therefore posited to be less criminally inclined than undercontrolled individuals, and this would be reflected in differences in patterns of offending. This hypothesis was partially supported by this study. As predicted, overcontrolled in-patients had fewer criminal convictions and longer periods between convictions than undercontrolled in-patients. Consistent with previous research, as compared to undercontrolled individuals, overcontrolled individuals had a later onset of offending (Denissen et al., 2008), fewer juvenile and adult convictions (Blackburn, 1975; D’Silva & Duggan, 2010), and fewer convictions and sentencing appearances overall (Blackburn, 1968, 1971; D’Silva & Duggan, 2010; Verona & Carbonell, 2000). Overcontrolled individuals were also less likely to have breached bail, community sentences, or licence conditions (Low & Day, 2015).

Based on Megargee’s ideas, it was hypothesised that overcontrolled individuals would engage in specialist patterns of offending and have shorter criminal careers than undercontrolled individuals, specifically engaging in a single-episode violent offence. Neither hypothesis was supported. A broad range of offence types was committed by both over- and undercontrolled forensic in-patients across lengthy criminal careers. There was no type of offending that was unique to overcontrolled in-patients in this study, although they had significantly fewer

convictions for violence against the person, public order offences, possession of weapons, miscellaneous crimes against society, and arson and criminal damage. All other types of offending were not significantly different between the over- and undercontrolled groups, including sexual offending. Overcontrolled in-patients in this study were not *specialist violent offenders* as predicted by Megargee (1966), rather they were criminally versatile like their undercontrolled counterparts.

The findings from this study indicate that whilst the patterns of offending of overcontrolled in-patients are less chronic, it would be misleading to refer to these individuals as fundamentally prosocial. Overcontrolled individuals' patterns of offending were lengthy, diverse, and non-specialist. The logistic regression revealed some potential forensic predictors of overcontrol warranting further examination. Highly predictive of being identified as overcontrol was a clumping pattern of offending, in which overcontrolled individuals have long gaps (average 30 months) between sentencing occasions and then a clump of miscellaneous crimes against society, or a relative absence of prior offending.

Contextual Variables: Megargee (1966, 2011) postulated that overcontrolled individuals' reaction potentials for violence would increase in specialist situations. Overcontrolled individuals were expected to know their victims, but this hypothesis was not supported. The pre-existing data could not be dissected further to confirm whether "known victims" were family members or people close to an overcontrolled individual, as identified by previous research (Hershorn & Rosenbaum, 1991; Howells, 1983; Megargee, 1966; McGurk, 1981; Worling, 2001). As anticipated, overcontrolled individuals were more likely to be alone when they enacted violence, but both over- and undercontrolled individuals had similar rates of co-defendants present, so this may not be a distinguishing characteristic. Analysis of other contextual and situational variables thought to influence reaction potential were not significantly different between over- and undercontrolled groups. This study does not support Megargee's hypothesis about "special situational" characteristics linked to overcontrolled individuals' offending, but the nature of the pre-existing data means that any conclusions are tentative, as detailed analysis was not possible. The variables were also not well defined in the databases' coding books, so it is unclear what constitutes known victim or stranger victim for this specific dataset.

Patterns of Violent Offending: Based on Megargee's (1966, 1996) theory, it was hypothesised that overcontrolled individuals would have less instigation to engage in violence and exhibit low habit strength for violent behaviour. The chronicity of violent offending would therefore be expected to be lower for overcontrolled than for undercontrolled in-patients. This hypothesis was partially supported. As predicted, compared to the undercontrolled individuals in this study, those categorised as overcontrolled had significantly fewer convictions for violence against the person, a later onset of violent offending, and as expected, fewer convictions for violence against authority figures such as police and prison officers (Frederiksen, 1975).

Megargee (1966, 2011) also theorised that whilst overcontrolled individuals with convictions would experience internal provocation to act out, strong prohibitions against overt aggression and superior inhibitory control would stop this internal distress being acted out violently. There would be times, however, when the instigation to aggression outweighed inhibition, resulting in intermittent explosive outbursts, or what Lynch, (2018a) calls "moments of emotional leakage". Based on this hypothesis, spikes (emotional leakage) in an overall flattened violent-offending profile would be expected. Analysis of violent-offending profiles did not support this hypothesis. Longer gaps between sentencing occasions for any type of violent behaviour were identified; however, the total number of violent convictions as an adult and length of criminal career for violent offending was not significantly different between over- and undercontrolled in-patients.

The severity of violent offending was expected to differ between chronically overcontrolled and undercontrolled individuals, with the former's offending thought more likely to commit severe and lethal violence (Megargee, 1966). Only 10 out of 91 participants were convicted of murder/manslaughter or an offence that resulted in the death of another person. The small sample size prevented statistical testing of this hypothesis, but the trend in the data was in the expected direction, with more overcontrolled ($n = 6$) than undercontrolled ($n = 4$) individuals in the sample of in-patients who had killed. Megargee (1966) also posited that a specialist type of violent offending would be the preserve of chronically overcontrolled individuals: one-off lethal violence. This is not supported, and for the majority of overcontrolled in-patients, repeated violence was more likely. Four out of the six people who had committed one-off lethal

violence were classified as overcontrolled, and at this time it would seem premature to rule this out as a specialist pattern of violent offending associated with maladaptive overcontrol.

In summary, this study revealed some differences in the chronicity of violent offending between over- and undercontrolled individuals with convictions. Both groups had lengthy criminal careers involving multiple violent offences, with between-group differences in chronicity of violent offending more pronounced prior to age 18 years. During adulthood, the total number of violent convictions did not differ significantly between over- and undercontrolled individuals, and this pattern of offending reflects previous findings (Denissen et al., 2008). The gaps between violent offences were, however, longer for overcontrolled in-patients, but any differences in the severity of violence inflicted on victims remains relatively untested.

5.4.1b Personality Functioning

Megargee's (1966) theory posits that ASPD and psychopathy would be more prevalent amongst undercontrolled individuals with convictions. This hypothesis was not supported, as both the over- and undercontrolled groups evidenced high levels of antisocial personality functioning and psychopathy. This finding is consistent with other studies in UK high-security hospital settings (Blackburn, 1986; Blackburn et al., 2008), but differs from the findings reported by D'Silva and Duggan (2010), which were drawn from a mixed medium- and high-security sample. A sampling bias may explain these unexpected findings, as detainment in a high-security hospital under the Mental Health Act (1983, amended 2007) requires a mental disorder diagnosis and evidence of grave and immediate danger to the public. Consequently, all of the individuals in this in-patient sample were more likely to have serious offending histories and higher levels of diagnosed psychopathology. It is therefore concluded that differences in antisocial personality functioning between over- and undercontrolled individuals need further testing in more generalised forensic settings to avoid sampling bias potentially distorting the results.

An alternative explanation for confirmation of the antisocial personality functioning null hypothesis may be misdiagnosis. Hempel et al., (2018c) found that maladaptive overcontrol was often misunderstood and misconceptualised as undercontrolled coping, in particular as

borderline personality disorder. Similarly, aspects of maladaptive overcontrol could quite reasonably be framed in terms of psychopathy and ASPD. For instance, an overcontrolled individual's biotemperamental bias towards heightened threat, which flattens affect and social signalling even in situations when emotions are expected, could be considered at interview as a callous and unemotional psychopathic trait. Outbursts of emotions in the context of an overall flattened picture of emotional expression, may look like impulsive, angry outbursts in terms of ASPD diagnosis. Alternatively strategic use of emotions because this is considered the logical response to solve a problem, may be seen as evidence of shallow affect (a psychopathy trait). A full examination of differential diagnosis between maladaptive overcontrol and psychopathy/ASPD is required before firm conclusions can be discerned.

5.4.1c Summary

This study supports Megargee's hypothesis that some people who offend have too much (overcontrol) rather than too little self-control. It does not support the assertion that overcontrolled individuals are fundamentally prosocial, but analysis of non-violent offending patterns confirmed that the overcontrolled in-patients were less criminally inclined across the lifespan. Overcontrolled individuals also had fewer convictions for violence against the person than undercontrolled in-patients, along with longer time periods between convictions for violent and non-violent crimes. Logistic regression analysis revealed engagement in non-contact offences and longer periods between offences characterised the overcontrolled person's offending pattern, but no one offence type was unique.

In sum, both over- and undercontrolled in-patient samples engaged in a range of offence types, confirming prior findings and adding gravitas to McGurk and McGurk's (1979) hypothesis that overcontrol is likely to be a general personality characteristic rather than a violent-offending typology as previously posited by Megargee (1966). Findings from this study also indicate a need for early intervention to keep these shy, reserved, and restricted kids on a prosocial trajectory, as any differences in patterns of offending were more pronounced prior to age 18 years.

5.4.2 Future Research

Evidence to support the dominant sampling approach used in prior forensic research examining overcontrol has not been forthcoming. Assigning over- and undercontrolled comparison groups based on chronicity of violent offending (repetitive versus single episode) or severity (extreme assaulters vs moderate assaulters) is therefore not recommended. Sample assignment using personality-based criteria is the most prudent way forward in the absence of a standardised, reliable, and valid measure of overcontrol and undercontrol.

The nature of specific violent offences committed by overcontrolled individuals, including their severity and contextual components, warrants further attention. A trend in this study indicates that a combination of low chronicity and high severity, i.e., one-off lethal violence, may reflect a pattern of violent offending synonymous with the overcontrolled pathway. This specialist type of offending is a promising line of enquiry that needs further exploration with larger samples. Future forensic research should also aim to explore the contextual and situational variables associated with offences committed by those identified as overcontrolled, such as overkill of the body, presence of substance use, homicide–suicide events, method of killing, number of victims in one episode, and so on (Lester, 1977; Megargee, 1966; Bacon et al., 2020).

A mismatch between results that evidence similar levels of self-reported antisocial personality functioning but differences in actual number of convictions requires further examination. Perhaps overcontrolled individuals have similar levels of antisocial and anti-authority attitudes, but these precipitants for crime are acted upon less frequently. Alternatively, undetected crimes could have been picked up in clinical interviews (IPDE and PCL-R) and in self-report measures (PAI), accounting for the similar levels of antisocial behaviour. Maybe overcontrolled individuals are offending at similar rates to undercontrolled individuals, but better detection-evasion skills mean that they are caught less frequently, resulting in fewer convictions (Gudjonsson et al., 1991).

Setting and misdiagnosis may also have conflated the levels of antisocial personality functioning identified in this study. Further testing in more generalised forensic settings is recommended to avoid sampling bias from high-security settings distorting results.

Systematically dissecting the relationship between maladaptive overcontrol, Hare Psychopathy, and Cluster B personality disorder diagnoses, in the same way Hempel et al. (2018b) dissected borderline personality disorder diagnosis and overcontrol, would greatly help this body of work and differential diagnosis.

Continuing to examine in detail the overall patterns of offending as well as offence antecedents would help understanding of what drives offending committed by individuals who have too much self-control. Promising qualitative methodologies, such as those employed by Chambers et al. (2009, 2011) and Howells (1983), revealed some interesting differences between over- and undercontrolled pathways to offending. The cross-sectional studies outlined in Chapter 4 of this thesis and the theoretical application of Lynch's theory of overcontrol to forensic populations (Chapter 2), also offer promising lines of enquiry. Looking at potential differences in patterns of offending amongst overcontrolled subtypes may provide a more nuanced analysis of the topic (Chambers et al., 2009, 2011; Henderson, 1982). Confirming the relevance of Lynch's novel neurobiosocial theory of overcontrol to forensic cases is also a priority, as the only known treatment for overcontrol is predicated on this theory. Further research examining all three components of this theory is needed, that is, biotemperamental (nature), socio-developmental (nurture), and compulsive coping.

5.4.3 *Limitations*

The findings of this study should be considered in light of its limitations. Firstly, the present study is post hoc in nature and relies on pre-existing official crime data. Relying on official crime statistics means that only crimes that resulted in legal sanctions were included in the study; however, much crime goes undetected (Buonanno et al., 2018; MacDonald, 2002). Official statistics may therefore underestimate the patterns of offending in both over- and undercontrolled groups, especially amongst those participants who may have better detection evasion. Secondly, whilst use of pre-existing health records is a well-tested method of clinical research (Cowie et al., 2017; Sammani et al., 2019), there are inherent weaknesses in this approach (Weiner & Embi, 2009; Weiskopf & Weng, 2013). In this study, some variables, especially contextual and victim variables, were of poor quality, incomplete, and were not fit for use as they were simple categorical variables. There was also no coding guidance available for the contextual and victim variables to confirm how these were operationalised and where

data had been extracted from. This hindered detailed analysis of the hypothesis that “special situations” were associated with the overcontrolled individuals’ decisions to offend. This study does, however, provide a good starting point, and provides some solid evidence supporting the idea that the antecedent for some offending may be too much rather than too little self-control.

Future studies examining patterns of offending amongst individuals considered to be overcontrolled should aim to supplement official crime data with self-report and third-party information. Specifically, examining the detection-evasion hypothesis is recommended. Primary data collection focused on eliciting detailed offence information, including proximal antecedents to choices to offend, severity of harm caused, victim characteristics, and crime-scene variables, would help discern the true nature of offending by overcontrolled individuals.

The sample sizes were relatively modest for some comparisons in this study, decreasing the power to detect small effects. However, it does confirm that patterns of violent offending did not distinguish between over- and undercontrolled participants and would not be a good method of sample assignment. Use of personality-based criteria for sample assignment was better but not straightforward, even in an environment where all patients have a diagnostic assessment, have detailed clinical records, and undergo close behavioural observation. A hybrid model of expert raters and personality disorder diagnosis based on Lynch’s ideas of how personality disorders may cluster was thought the best available method of sample identification. Sample assignment could be made easier and improved with the development of reliable and valid specialist measures of over- and undercontrol. Finally, the specialist nature of the high-security forensic in-patient setting likely creates a sampling bias, and extension of this work to other forensic contexts is essential.

5.5 Conclusions

This study confirmed that a substantial proportion of individuals in a high-security hospital setting could be classified as overcontrolled, and like their undercontrolled counterparts, they have extensive histories of serious interpersonal violence and other offending. A next logical step would be to test Lynch’s new theory of overcontrol, as it is linked to the only known effective treatment for maladaptive overcontrol, RO-DBT. If there is evidence that this theory applies to overcontrol in a forensic context, it justifies – at least theoretically – trialling this

new rehabilitative intervention. It also provides much-needed theoretical foundations for systematically examining the phenomenon of overcontrol in forensic populations and understanding potential differences in the offending pathways of over- and undercontrolled individuals. This would permit the development of more precise forensic treatment pathways, which will hopefully result in individuals with convictions receiving more personally relevant treatments. This will in turn protect the public from further harm if people can be successfully diverted away from offending.

Chapter 6: Examination of Lynch’s Novel Neurobiosocial Model of Overcontrol: Biotemperamental Biases and Compulsive Coping Components

This chapter extends Lynch’s multi-faceted conceptualisation of overcontrol, which was developed with clinical populations, to a forensic context. Testing this novel approach to overcontrol before large-scale primary data collection can occur is imperative. This study uses participants drawn from the same high-security forensic psychiatric in-patient sample employed in Chapter 5 and specifically examines the biotemperamental (nature) and coping components of Lynch’s model of overcontrol. The core clinical mechanism in Megargee’s (1966) descriptor of overcontrol in forensic populations, excessive anger regulation, is also re-examined.

6.1 Introduction

Whilst the relationship between low self-control and offending is hard to deny, there is, however, a dearth of research supporting the assumption that high self-control is a protective factor. A simplistic linear model between self-control and offending is unlikely, with large-scale database studies confirming that both low and high self-control increase the probability of psychopathology (Block & Block, 2006; Bohane et al., 2017; Lynch, Hempel, & Clark, 2015) and offending (Megargee, 1966; Mears et al., 2013).

Cross-sectionally and longitudinally, undercontrolled coping has been associated with a broad spectrum of personal and social problems, including substance abuse, domestic violence, financial difficulties, teen pregnancy, smoking, and obesity (Baumeister et al., 1994; Moffitt et al., 2011). It has also been found that people of the undercontrolled personality prototype are more likely to be convicted of a criminal offence, spend time in prison, and experience conduct problems growing up (Moffitt et al., 2011). People with maladaptive undercontrol are often characterised as dramatic–erratic, mood dependent, chaotic in interpersonal relationships, using excessive avoidance coping, having an overtly expressive nature, and being more likely to experience Cluster B personality disorders (Turner, Sebastian, & Tüscher, 2017). The *undercontrolled aggressive* person, according to Megargee (1996), has low inhibitions, low

frustration tolerance, and is easily provoked into expressing anger outwardly. Undercontrolled individuals with convictions also tend to produce personality profiles marked with poor anger control, high impulsivity, and relationship difficulties, and they report high levels of general psychological distress (Blackburn et al., 2008; Megargee, 1966; Low & Day, 2015).

Despite mounting evidence of an association between maladaptive overcontrol and serious offending – as confirmed by the systematic review in Chapter 4 and the study of forensic profiles in Chapter 5 – very little is known about the aetiology of overcontrol amongst individuals with convictions. Forensic conceptualisations of maladaptive overcontrol have typically been quite narrow, explaining violent offending in relation to excessive anger suppression (Megargee, 1966). Later explanations added cognitive rehearsal and rumination, aggravating factors that drive a person to a tipping point at which they can no longer inhibit and suppress angry feelings (Chambers et al., 2009, 2011; Day, 2009).

A recent, more comprehensive, neurobiosocial theory of overcontrol has been proffered by Lynch (2015, 2018a), and this was applied to a forensic context in Chapter 2 and Hamilton et al. (2018). In brief, Lynch's (2018a) neurobiosocial theory of overcontrol proposes three overarching influences in the development and maintenance of overcontrol: temperament (nature), family/environment (nurture), and self-control tendencies (coping). Overcontrolled individuals are posited to have biotemperamental biases towards heightened threat, diminished reward, excessive inhibition, and detail-focused processing, and these are thought to be intermittently reinforced by parenting practices that lead to a distinctive form of restrictive coping.

Maladaptive overcontrolled coping, according to Lynch,(2018a), involves five core features relating to compulsive emotional inhibition: relational aloofness; hypervigilance; excessive caution; rigid and rule-governed behaviour; and secret envy, bitterness, and resentment. The biotemperamental biases and compulsive coping components posited by Lynch to be associated with maladaptive overcontrol, along with Megargee's anger-regulation hypothesis, will be explored using pre-existing clinical data from a forensic personality disorder in-patient unit. These pre-existing routinely collected measures are the International Personality Disorder Examination (IPDE; Loranger, 1999), Personality Assessment Inventory (PAI; Morey, 1991), State Trait Anger Expression Inventory-2 (STAXI-2; Spielberger, 1999), Chart of

Interpersonal Reactions in Closed Living Environments (CIRCLE; Blackburn & Renwick, 1996), and UPPS Impulsive Behaviour Scale (UPPS; Whiteside & Lynam, 2001).

The following hypotheses based on Lynch's neurobiological theory of overcontrol and Megargee's ideas were tested:

1. Biotemperamental Bias:

- i) Overcontrolled in-patients will have elevated threat sensitivity compared to undercontrolled in-patients, as shown by higher scores on the PAI paranoid subscale for hypervigilance;
- ii) Overcontrolled in-patients will have lower reward sensitivity than undercontrolled in-patients (i.e., lower sensation-seeking scores on UPPS).

2. Restricted Coping:

- i) **Aloof and distant relationships:** Overcontrolled in-patients will be more socially withdrawn than undercontrolled in-patients, as evidenced by higher subscale scores on PAI social detachment, greater interpersonal withdrawal on the CIRCLE, and lower scores on the PAI subscale for interpersonal warmth and the CIRCLE gregariousness subscale. No differences in PAI and CIRCLE dominance scores are expected amongst over- and undercontrolled in-patients;
- ii) **Inhibited emotional expression:** Compared to the undercontrolled in-patients, those classified as overcontrolled will have coping styles characterised by high emotional control, as measured by lower UPPS urgency subscale scores, lower STAXI-2 scores on anger experience and outward expression of anger, and higher scores on anger control;
- iii) Overcontrolled in-patients will have **greater need for structure and order**, as measured by higher scores on the PAI obsessive–compulsive subscale;
- iv) **Elevated resentment and bitterness** will be evident in higher PAI paranoid resentment subscale scores for overcontrolled compared to undercontrolled in-patients.

Finally, significant bivariate relationships ($p \leq 0.05$) were entered into logistic regression equations to test Lynch's (2018a) hypotheses.

6.2 Method

The sample consisted of 93 male patients admitted to a specialist high-security forensic in-patient service for assessment, with an average length of time in hospital of 6.6 years ($SD = 3.9$). The mean age of the sample was 42 years ($SD = 9.6$) with a range of 22–65 years. The ethnicity of those in the sample was predominantly white (96%), with 3% Asian and one mixed-heritage person. All participants were detained under the UK Mental Health Act (2007) due to their mental disorder having been deemed to be a grave and immediate danger to others. Participants often had multiple diagnoses that spanned the various DSM personality disorder (PD) clusters (APA, 2000) and 91% had an antisocial PD (ASPD) diagnosis. Three participants also had a formal diagnosis of Asperger syndrome. Participants' offending histories included a broad range of offences. Those who received a determinate sentence had an average sentence length of 6.3 years ($SD = 2.9$) and those with an indeterminate sentence had an average tariff length of 9.0 years ($SD = 7.5$).

6.2.1 *Dependent Variable*

The dependent variable was a dichotomous variable indicating whether an individual was classified as over- or undercontrolled. This was based on a two-stage process involving formal diagnosis and expert rating, and the sample assignment method is outlined in detail in Chapter 3 (§3.6.4, p. 102). Of the final sample of 93 high-security personality-disordered patients, 41 (44%) were assigned to the overcontrolled group and 52 (56%) to the undercontrolled group.

6.2.2 *Materials*

The IPDE (Loranger, 1999) was completed by a qualified psychologist who was employed by the Unit and who had completed specialist IPDE training. The IPDE is a 99-item semi-structured clinical interview assessing PD, as described in the ICD-10 (World Health Organization, 1992) and the DSM-IV-TR (APA, 2000). The items are introduced by open-ended inquiries and offer the individual the opportunity to discuss the topic and supplement the answers with examples or anecdotes. Additionally, the instrument provides a set of probes to determine whether the individual has met the frequency, duration, and age-of-onset requirements. Items are scored as 0 (absent or within normal range), 1 (present to an attenuated

degree), or 2 (pathological, meets criterion standards). The IPDE has shown excellent internal consistency, demonstrated by alpha coefficients of .88 for Cluster A PDs, .93 for Cluster B PDs, and .88 for Cluster C PDs (Loranger et al., 1991).

The PAI (Morey, 1991) was administered by an assistant psychologist under the supervision of a qualified psychologist. The PAI is a 344-item self-report measure with 22 scales, and these provide information relevant to screening of psychopathology (11 clinical scales), treatment engagement ($n = 5$), and validity ($n = 4$), and there are two interpersonal scales. Each item is rated on a 4-point *very true* to *false* scale. Based on our current hypotheses, the following PAI scales and subscales are of interest. The Paranoid Resentment subscale focuses on bitterness and cynicism in interpersonal relationships and a tendency to hold grudges and externalise blame for any misfortunes. Paranoid Hypervigilance measures suspiciousness and the tendency to monitor the environment for real or imagined slights by others. The Anxiety scale indicates the degree of tension and negative affect experienced by the respondent, and the Obsessive–Compulsive subscale focuses on intrusive thoughts or behaviours, rigidity, indecision, perfectionism, and affective constriction. The Depression scale assesses cognitive, affective, and physiological elements of depressive symptoms. The Social Detachment subscale focuses on social isolation, discomfort, and awkwardness in social interactions. In addition, there are two interpersonal scales: Warmth, which indicates the degree to which a person is interested in and comfortable with attachment relationships; and Dominance, which captures the degree to which a person desires control in interpersonal relationships. The alpha coefficients reported for these measures range from .73 to .81, indicating good levels of internal consistency reliability (Boyle & Lennon, 1994).

The STAXI-2 (Spielberger, 1999) was administered by an assistant psychologist under the supervision of a qualified psychologist. The STAXI-2 is a 57-item anger measure consisting of five scales and an Anger Expression Index that provides an overall measure of total anger expression. This self-report anger measure uses a 4-point scale from *not at all* to *almost always*. The following scales and subscales are of interest in this study. The Trait Anger scale assesses how often angry feelings are experienced over time, and this has two subscales: Temperament (e.g., being bad tempered and angered easily) and Reaction (e.g., being criticised or making mistakes). The Anger Expression scale also has two subscales: Anger Expression-Out is the

expression of angry feelings towards other people or objects in the environment (e.g., arguing), whilst Anger Expression-In refers to holding in or suppressing angry feelings and harbouring grudges (e.g., boiling on the inside, but not showing it). Anger Control has two subscales as well: Anger Control-Out involves instrumentally managing behaviour when angry and controlling angry feelings by preventing their expression towards other people or objects in the environment (e.g., being patient with others); Anger Control-In is controlling angry feelings and attempting to maintain emotional control by calming down or cooling off (e.g., trying to relax). The STAXI-2 exhibits good reliability, with alpha coefficients ranging from .79 to .93 (Etzler et al., 2014; Spielberger, 1988). The structure of the STAXI and its anger-expression subscales (Spielberger et al., 1985) has been replicated with samples of people with convictions (Etzler et al., 2014).

The CIRCLE (Blackburn & Renwick, 1996) is a 49-item nursing observational measure designed to assess an individual's interpersonal behaviour within closed conditions, such as in a high-security hospital. Two nurses who were familiar with the patient independently rated CIRCLE items, and the assessment was scored by an assistant psychologist, providing eight scale scores. The CIRCLE is based on a two-dimensional system in which interpersonal styles and behaviours form a circular array, or circumplex (Leary, 1957), around the orthogonal dimensions of dominance (vs submission) and love (vs hostility). Interpersonal styles can be distinguished as different combinations of these dimensions, usually represented on eight scales, with only the Dominant and Withdrawn subscales being of interest in this study. Items are related to rating the frequency of observed institutional behaviour (e.g., "dominates conversations", "demands attention to his own rights"), with each item rated on a 4-point scale ranging from 0 (*not at all*), 1 (*occasionally*), 2 (*fairly often*), to 3 (*usually or frequently*). The reliability of these scales is satisfactory, and the inter-rater reliability ranges from .55 to .88 (Blackburn & Renwick, 1996).

The UPPS (Whiteside & Lynam, 2001) is a 45-item measure originally developed by Whiteside and Lynam (2001). The UPPS was designed to measure impulsivity across dimensions of the five-factor model of personality, with only two of the four subscales used in this study: Urgency and Sensation Seeking. Participants rate their attitude and behaviour on a 4-point scale ranging from 1 (*agree strongly*) to 4 (*disagree strongly*). The internal consistency of the dimensions ranged

from .82 to .91 (Whiteside & Lynam, 2001), and the scale has good convergent and discriminant validity (Cyders & Smith, 2007).

6.2.3 Procedure

Ethical approval for the study was obtained from Nottingham Trent University (No. 2016/102), and the study design and use of pre-existing clinical data were approved by the Research and Development Committee at Nottinghamshire Healthcare NHS Foundation Trust. All data were collected as close to each patient's admission date to the secure hospital as possible, as this is when clinical decisions regarding future treatment pathways are made. Where this was not possible, the earliest recorded version of the measure was used, typically before formal psychological treatment commenced.

6.2.4 Data-Analytic Plan

The design of the study involved three sequential data-analytic steps. First, the prevalence of overcontrol and undercontrol in our forensic sample was identified. Next, bivariate analyses using chi-square, or independent *t*-tests were conducted. Following this, significant bivariate relationships ($p \leq 0.05$) were entered into logistic regression equations to test Lynch's (2018a) hypotheses.

6.3 Results

In this sample of 93 high-security personality-disordered patients, 41 (44%) were assigned to the overcontrolled group and 52 (56%) to the undercontrolled group. The over- and undercontrolled groups both had an average age of 42 years, with $SD = 8.9$ years and $SD = 10.3$ years, respectively. The current length of stay in hospital was 6 years ($SD = 3.6$) for the undercontrolled group and 7 years ($SD = 4.2$) for the overcontrolled group. Often, patients had multiple admissions to high-security services, and Table 11 shows the total numbers of years patients from each group had spent in high-security forensic services.

Table 11: Demographics of Under- and Overcontrolled (UC and OC) Samples

	OC (n = 41)	UC (n = 52)	Null hypothesis test
	%	%	
Total time in high-security services			
<5 years	36 (15)	41 (21)	
5–10 years	40 (16)	45 (23)	$\chi^2(3, N = 93) = 2.29,$ $p = .51$
>10 years	24 (10)	14 (7)	
Index offence			
Sexual offence only	19.5 (8)	19.6 (10)	
Violent offence only	52.6 (20)	47.4 (18)	
Sexual & violence	19.5 (8)	11.8 (6)	$\chi^2(6, N = 93) = 13.08,$ $p = .04$
Arson	2.5 (1)	2.0 (1)	
Acquisitive offending	–	11.8 (6)	
Mixed of offences	2.5 (1)	17.6 (9)	
Other	7.3 (3)	2.0 (1)	

Table 11 also reveals that the majority of both over- and undercontrolled patients spent less than 10 years in high-security services; however, there was a small group of overcontrolled ($n = 10$) and undercontrolled ($n = 7$) patients who had had protracted stays (>10 years) in high-security services. Both over- and undercontrolled samples included a range of index offence types (e.g., violence, sexual offences, arson). A chi-square test of independence revealed a statistically significant difference for offence type, with standardised-residual analysis indicating that mixed and acquisitive offending contributed most to the difference between over- and undercontrolled individuals with convictions.

6.3.1 Biotemperamental Biases

Table 12: Biotemperamental Biases of Over- and Undercontrolled Groups

Scale/Subscale	OC M (SD)	UC M (SD)	t-test
PAI Paranoid Hypervigilance	68.07 (18.46)	65.69 (15.79)	$t(90) = -0.67, p = .505$
UPPS Sensation Seeking	29.52 (8.50)	32.22 (8.94)	$t(55) = -1.16, p = .253$
UPPS Urgency	27.80 (7.85)	32.56 (8.89)	$t(55) = 2.11, p = .039$

As predicted, the PAI Paranoid Hypervigilance subscale was elevated for the overcontrolled group, with a *T*-score of almost 70; however, the between group difference was not statistically significant. Both over- and undercontrolled in-patients experienced elevated levels of threat

sensitivity, as indicated by the clinically elevated PAI Paranoid Hypervigilance *T*-scores. The expected difference between groups in levels of reward sensitivity was not confirmed, and both groups reported low scores on the UPPS Sensation-Seeking scale (see Table 12). In line with the hypotheses, overcontrolled participants had significantly lower scores on the UPPS Urgency ($p < .05$) subscale than undercontrolled participants, which suggests a greater capacity to inhibit strong impulses and emotions.

6.3.2 Compulsive Self-Control

Differences in self-control (coping) tendencies between over- and undercontrolled individuals are examined in the following subsections.

6.3.3 Interpersonal Functioning

Table 13: Interpersonal Functioning of Over- and Undercontrolled Groups

Scale/Subscale	OC <i>M (SD)</i>	UC <i>M (SD)</i>	<i>t</i> -test (df)
PAI Dominance (<i>T</i> -score)	44.32 (10.31)	48.75 (10.86)	$t(90) = 1.99, p = .05$
PAI Warmth (<i>T</i> -score)	34.41 (12.72)	39.25 (11.74)	$t(90) = 1.89, p = .061$
PAI Social Detachment (<i>T</i> -score)	66.22 (15.66)	59.10 (13.62)	$t(90) = -2.33, p = .022$
CIRCLE Withdrawn	15.17 (5.47)	10.55 (5.45)	$t(66) = -3.57, p = .001$
CIRCLE Gregarious	11.77 (5.53)	15.45 (5.46)	$t(66) = 2.74, p = .008$
CIRCLE Dominant	15.70 (8.70)	18.39 (7.80)	$t(66) = 1.34, p = .183$

As can be seen from Table 13, over- and undercontrolled patients' scores differed significantly on the PAI Social Detachment scale ($p < .05$), with overcontrolled individuals feeling less socially connected to others. Mixed findings were found for PAI Dominance ($p < .05$), with overcontrolled patients reporting significantly lower in comparison to undercontrolled individuals. In contrast, nurse observations (CIRCLE Dominant) revealed little difference in displays of dominance between over- and undercontrolled patients. Staff members rated overcontrolled patients on the CIRCLE as more socially isolated and withdrawn ($p < .001$), and less gregarious, spontaneous, and fun-loving ($p < .01$) than undercontrolled patients.

6.3.4 Anger Regulation

Table 14: Anger Regulation of Over- and Undercontrolled Groups

Scale/Subscale	OC M (SD)	UC M (SD)	t-test (df)
Trait Anger (Tang)	52.40 (14.85)	60.00 (16.29)	$t(70) = 2.02, p = .047$
Angry Temperament (Tang/T)	50.13 (12.92)	61.48 (15.93)	$t(70) = 3.22, p = .002$
Anger Expression-Out (AX/O)	51.07 (11.77)	62.48 (13.99)	$t(70) = 3.64, p = .001$
Anger Expression-In	58.00 (14.46)	58.40 (12.64)	$t(70) = .126, p = .900$
Anger Control-In	48.40 (10.74)	44.90 (11.33)	$t(70) = -1.32, p = .192$
Anger Control-Out	45.07 (11.40)	39.79 (11.96)	$t(70) = -1.88, p = .064$
Anger Index Score	55.27 (11.57)	61.81 (13.42)	$t(70) = 2.16, p = .034$

The STAXI-2 anger measure was available for 72 participants (30 overcontrolled and 42 undercontrolled). In line with the hypotheses, overcontrolled participants had lower experiences of anger and were less likely than undercontrolled patients to express their angry feelings in verbal or physically aggressive behaviour (see Table 14). Statistically significant differences between over- and undercontrolled patients were found for Trait Anger ($p < .05$), the Angry Temperament subscale of Trait Anger ($p = .002$) and Anger Expression-Out ($p < .001$). Significantly lower scores on the Anger Expression Index subscales suggest that overcontrolled patients were on the whole less likely to openly express anger and more likely to try harder to consciously control their anger experiences than undercontrolled patients, ($p < .05$). No significant differences were found between under- and overcontrolled patients with regard to emotional suppression as measured by the Anger Expression-In subscale, the Anger Control-In subscale, or the Anger Control-Out subscale (controlling physical and verbal signs of aggression).

6.3.5 Rigid Rules and Resentment

Contrary to expectations, no differences between groups were found for resentment (PAI Resentment), $t(90) = -.078, p = .94$; however, both groups evidenced above average *T*-scores of 60. Again, contrary to expectation, no differences were found between the groups' need for structure and order (PAI Obsessive–Compulsive), $t(90) = -.667, p = .51$.

6.3.6 Robustness of Multiple Testing

The interval estimates reported here are not corrected for multiple comparisons. For this reason, a Welch–Satterthwaite corrected *t*-test using the Hochberg correction was computed to provide *p* values adjusted for the 16 multiple comparisons. The previously identified statistically significant result for the biotemperamental bias variable UPPS Urgency was not retained (adjusted *p* = .12). Two of the previously identified statistically significant results for interpersonal coping were retained: lower CIRCLE Gregarious (adjusted *p* = .040) and higher CIRCLE Withdrawn (adjusted *p* < .006). Statistically significant results were retained for two anger-regulation variables, lower Angry Temperament (adjusted *p* = .012) and lower Anger Expression-Out (adjusted *p* = .007).

6.3.7 Logistic regression

A logistic regression was performed to assess the impact of clinical-related variables (those which had been identified as significant in the bivariate analysis) that increased the likelihood of being overcontrolled. The model contained eight independent variables: UPPS Urgency, PAI Dominance, PAI Social Detachment, CIRCLE Withdrawn, CIRCLE Gregarious, STAXI Tang/T, STAXI AX/O, and STAXI Anger Index. The full model containing all predictors was statistically significant using the likelihood chi-square test, $\chi^2(9, N = 45) = 35.88, p < .001$, indicating that the model was able to distinguish between respondents who were over- or undercontrolled. Examination of influence and leverage graphs indicated that there was not a strong case to exclude any case, so all participants were included in the regression analysis. The model correctly classified 87.2% of cases, and explained between 44.3% (Cox and Snell Pseudo- R^2) and 59.9% (Nagelkerke Pseudo- R^2) of the variation between over- and undercontrolled individuals. Only one of the previously significant independent variables made unique statistical contributions to the model, namely UPPS-Urgency. This indicates that a lower urgency to act upon negative emotions and sensation increases the probability of being identified as overcontrolled. Other previously significant variables did not contribute a unique effect, and the small sample size is likely contributing to a lack of statistical power to detect unique effects because the predictors are correlated. There was some collinearity between

predictors, but tolerance for this model was within recommended limits for all predictors, 0.29 – 0.81 (all VIF < 3.5).

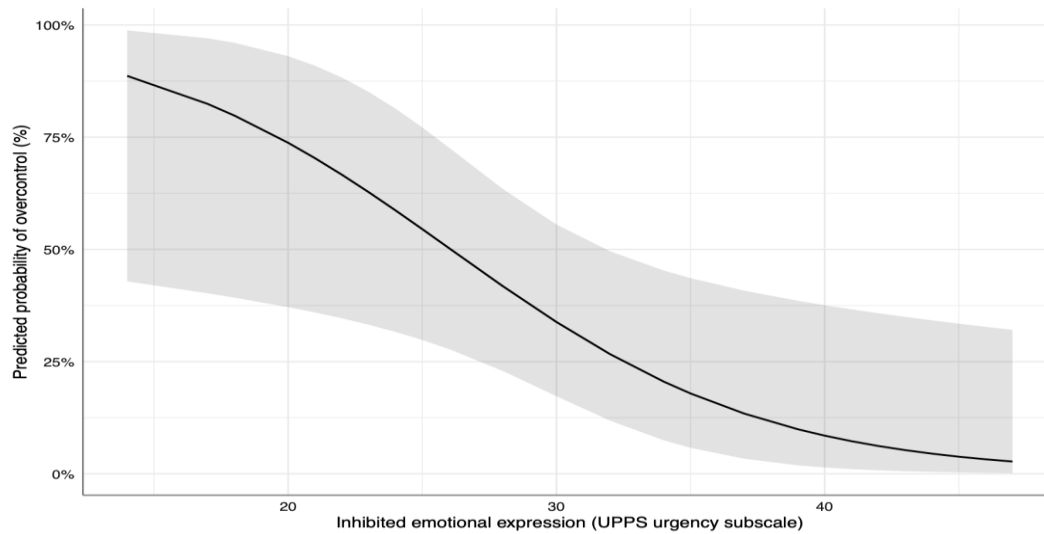


Figure 11: Probability of Overcontrol by Inhibited Emotion Expression

When other predictors are unchanged inhibited emotional expression (UPPS-Urgency score) was predictive of being identified as overcontrolled, likelihood ratio test is $\chi^2(1) = 6.10$, $p = .01$. Figure 11 shows that a score over under 20 on the UPPS urgency subscale increased the probability of being identified as overcontrolled, with 75% of cases scoring under 20. Scores below 10 on UPPS-Urgency increased probability estimates to 90%.

6.4 Discussion

The purpose of this exploratory study was to apply Lynch’s theory of overcontrol to a forensic population and generate information about the clinical characteristics of overcontrolled individuals who have convictions. Two components of Lynch’s model were tested in this study, biotemperamental biases (nature) and compulsive self-control (coping). Not all subcomponents could be examined using the pre-existing data, such as social signalling, attention to detail, envy, and bitterness. Overall, the biotemperamental biases tested were found to be in the expected directions, but the anticipated differences between over- and undercontrolled participants were only found for excessive inhibitory control. Three out of the five overcontrolled habitual coping themes posited by Lynch (2018a) – high emotion inhibition,

hypervigilance, and problems maintaining healthy socially connected relationships – were confirmed. Rigid and rule-governed behaviour, as measured by need for structure and order, was not detected, and elevated resentment was noted for both groups.

6.4.1 *Biotemperamental Biases*

The overcontrolled individual with convictions was characterised by high emotional inhibition (UPPS Urgency), and whilst the predicted biotemperamental biases of high threat sensitivity and low reward sensitivity were present, the reported scores were not statistically different for over- and undercontrolled forensic in-patients. Measurement problems caused by using pre-existing data may have hindered examination of the proposed differences in threat and reward sensitivity, as Lynch’s theory suggests these differences are at a sensory-receptor level, and PAI Hypervigilance and UPPS Sensation Seeking may not measure the same concepts. The high-security in-patient context may also account for unexpected findings; for example, elevated hypervigilance in both groups may be a functional response to living in an environment where risk of harm is high (Wolff & Shi, 2009). Chambers et al. (2010) has also argued that “the pathway to impulsive violence differed with secondary psychopaths [undercontrolled subtype] becoming hypervigilant after abuse compared to similar brain dysfunction resulting from depression in the inhibited [overcontrolled] type” (p. 322). Inadvertently, this sample may have included disproportionately more of the aforementioned undercontrolled subtype, which is characterised as having low impulse control but high threat due to childhood maltreatment (Blackburn, 1975; Blackburn et al., 2008).

6.4.2 *Compulsive Coping*

Megargee’s original descriptor of “*chronically overcontrolled violent offenders*” implicated excessive anger regulation as a central mechanism in explaining violent offending, but this core coping deficit was not confirmed. Whilst anger-inhibition scores were generally lower for overcontrolled in-patients when compared to undercontrolled in-patients, their scores were within the normal range when compared with the STAXI general-public norms. These findings support prior research and point towards anger psychopathology in the undercontrolled group only (D’Silva & Duggan, 2010; Low & Day, 2015; Redondo et al., 2019).

Lynch's theory offers an alternative mechanism underpinning maladaptive overcontrol, with problems in social signalling thought to undermine social connectedness and lead to emotional loneliness (Lynch, 2018). Whilst social signalling was not directly examined in this study, the associated interpersonal problems were confirmed, and there was indirect evidence that a lack of prosocial signalling may be present. Overcontrolled in-patients reported feeling less connected to others and were also experienced by others as less warm, spontaneous, and fun-loving. Similar findings were reported by Blackburn (1986) and Henderson (1982). Measurement differences probably account for variation in dominance results, with self-report measures suggesting overcontrolled individuals were less dominant but nurse observations revealing no difference between samples. Staff members rated overcontrolled in-patients as being significantly more socially isolated and withdrawn, and less gregarious, spontaneous, and fun-loving than undercontrolled in-patients. These findings offer tentative support for Lynch's (2018a) hypothesis that maladaptive overcontrol is a disorder of emotional loneliness rather than a disorder of excessive anger regulation as previously thought.

6.5 Limitations

The findings of this study should be considered in light of its limitations. As stated in Chapter 3, the reliance on a retrospective design and on pre-existing data is problematic. Specifically, for this study, reliance on pre-existing data meant that proxy measures for theoretical variables of interest had to be used. Whilst this provides a starting point – offering preliminary evidence to support the idea that an antecedent for some offending may be too much rather than too little self-control – future studies should aim for primary data collection and use measures that assess posited biotemperamental biases at the sensory-receptor level, examine developmental experiences, and address the range of restricted coping thought by Lynch (2018a) to be related to compulsive self-control.

Developments in measures have also occurred since the collection of the original data, and it is recommended that the updated UPPS-P (Cyders et al., 2007) is used in primary data collection, as it now assesses inhibition of approach behaviours stimulated by positive affect as well as avoidance behaviours stimulated by negative affect. Employing the measures recommended in Lynch (2018a, p. 77) would also support cross-cultural comparisons if

assessments became widely used, such as the *Personal Need for Structure* (Thompson et al., 1992; Neuberg & Newsom, 1993) and the *Acceptance and Action Questionnaire-II* (Bond et al., 2011).

Secondly, the sample sizes were relatively modest for some comparisons, decreasing the power to detect small effects and the unique contribution of variables where predictors are correlated. As identified previously, this sample is drawn from a very selective population detained in a high-security forensic hospital, and it is highly probable that they will not be representative of the general prison population. Their levels of psychopathology and the risks they pose to others are likely to be greater, because to fulfil the criteria for detention in a high-security hospital under the Mental Health Act, the person must have a diagnosable mental disorder and pose a grave and immediate danger to the public if released. This may explain the clinically elevated levels of threat sensitivity found amongst both groups, and the tightly restricted living environment may be artificially depressing the sensation-seeking or reward-sensitivity aspects associated with undercontrolled functioning.

Future studies should continue to compare over- and undercontrolled individuals with convictions to determine in what ways they may differ, and research across the spectrum of forensic services would help to delineate how over- and undercontrolled individuals' presentations may be affected by living in highly controlled and structured environments such as prison and in-patient services.

Finally, sample identification was not straightforward, even in an environment where all patients have a diagnostic assessment, have detailed clinical records, and undergo close behavioural observation. A hybrid model of expert raters and PD diagnosis based on Lynch's ideas of how personality disorders may cluster was thought to be the best available method of sample identification, but this could be improved with the development of reliable and valid specialist measures of overcontrol.

Chapter 7: Examination of Lynch’s Novel Neurobiosocial Model of Overcontrol: Socio-Developmental Experiences and Childhood Maltreatment

This study revisits the idea of a behaviourally overcontrolled (internalising) pathway to offending, with a specific set of developmental cascades outlined in the *nurture* component of Lynch’s (2018a) theory of overcontrol and elaborated upon in Chapter 2 of this thesis. This component includes family, cultural and environmental factors, and learning. These sociobiographical influences can be “historical (childhood trauma, past learning) or contemporary (present living conditions, new learning). The transactions between nature, nurture, and coping are posited to be iterative and bidirectional; that is, nature influences nurture, and vice versa” (Lynch, 2018, p. 54). Essentially, sociobiographical experiences are posited by Lynch (2018a) to intermittently reinforce overcontrolled biotemperamental biases, resulting in the emergence and maintenance of maladaptive overcontrolled coping.

7.1 Introduction

A developmental sequence for the behaviourally overcontrolled (internalising) pathway to offending is emerging, but it is still under-researched compared to the undercontrolled pathway (Chassin et al., 2016; Handley et al., 2017; Mezquita et al., 2014; Oshri et al., 2011). After a systematic review of the extant literature (Chapter 4), it was found that only 11 studies have specifically examined the socio-developmental experiences of overcontrolled individuals with convictions. This study explores forensic psychiatric in-patients’ historical sociobiographical experiences, specifically differences between over- and undercontrolled individuals’ experiences of childhood maltreatment, school adjustment, peer relationships, and stability of caregivers and care-giving environments.

7.1.1 Childhood Maltreatment

The links between childhood maltreatment, overcontrol, and offending have rarely been examined, and the extensive literature review in Chapter 4 revealed only five studies that reported maltreatment rates amongst overcontrolled individuals with convictions (Blackburn

et al., 2008; Chambers et al., 2011; Hershorn & Rosenbaum, 1991; Jensen, 2003; Worling, 2001).

Chambers et al. (2011) found that overcontrolled women with convictions reported less childhood maltreatment than undercontrolled females. Hershorn and Rosenbaum (1991) found that men convicted of intimate partner violence (IPV) and assigned to a proxy overcontrolled group ($n = 17$) experienced more maternal rejection and harsher parental physical discipline compared to a proxy undercontrolled group ($n = 24$) also convicted of an IPV offence. Contrary to this finding, Worling (2001) found that juvenile males convicted of a sexual offence and identified as overcontrolled ($n = 27$) were less likely than a undercontrolled group ($n = 55$) to report harsh physical discipline by parents. Others found no differences between over- and undercontrolled individuals with convictions in terms of experiences of childhood maltreatment (Jensen, 2003) and childhood sexual abuse (Worling, 2001). Similarly, Blackburn et al. (2008) found no significant difference between under- and overcontrolled individuals detained in a high-security hospital with respect to experiences of sexual, physical, and emotional abuse. Subtype analyses in this study did reveal that the “inhibited” and “secondary psychopath” groups experienced significantly more sexual and physical abuse than the other two clusters.

In summary, maltreatment is common across over- and undercontrolled groups, with many people in these studies experiencing polymaltreatment and no discernible differences in the occurrence rates and types of maltreatment experienced. There is also little consensus amongst existing research in terms of study design, definition of maltreatment, and data collection methods. Parallel research, such as that examining maltreatment and internalising psychopathology or maltreatment and offending, will therefore be used to operationalise the concept of maltreatment and help establish variables which may mediate the relationship between childhood maltreatment and offending.

In this study, childhood maltreatment is an umbrella term used to describe adverse experiences such as physical abuse, sexual abuse, physical neglect (failure to provide), supervisory neglect (lack of supervision), emotional abuse, chronic parental invalidation, educational neglect, and moral neglect (Barnett et al., 1993; English & LONGSCAN Investigators, 1997). The importance of developing secure prosocial attachments has long been recognised as an essential

ingredient in healthy development (Ainsworth et al., 1978; Bowlby, 1969), and the pathogenic implications of caregivers failing to provide a child with a sense of safety in connection to others permeates all aspects of human functioning (Cicchetti & Toth, 2015). Parental maltreatment can also damage the protective components of affective parental bonding and familial structure, as children who experience strong positive bonds with loving parents are more secure and appear more resilient to the negative consequences of abuse and neglect if they do occur (Deater-Deckard & Dodge, 1997; Jaffee & Maikovich-Fong, 2011; Ungar, 2013; Widom et al., 2018). Environmental instability in childhood is also thought to be particularly corrosive to prosocial adjustment, and this is reflected in multiple school, home, and “out of home” placements (Brännström et al., 2017; Ryan & Testa, 2005), as well as experiencing parental rejection and absences, maltreatment perpetrated by parents, or care-giver abuse in institutions (Carr et al., 2020a, 2020b; Edwards et al., 2012).

It is of course too simplistic to assume that childhood maltreatment causes psychopathology or criminal behaviour, rather it is associated with a multifinality of positive (Jaffee, 2017; Klitka & Herrenkohl, 2013; Chan et al., 2016) and/or negative life outcomes for abuse survivors (Hagborg et al., 2020; Skinner et al., 2016). Damaged parental bonds can also be repaired, or there can be *earned secure attachments* who act as protective surrogates in childhood and/or later life (Pearson et al., 1994; Roisman et al., 2014; Venta et al., 2015). The developmental timing of maltreatment is also thought to mediate trauma sequelae, with longitudinal studies of children, associating neglect or maltreatment experienced very early in life (infancy, toddlerhood) with higher risk of later internalising (Keiley et al., 2001) and externalising problems (Figge et al., 2018). Others found that both maltreatment prior to 5 years of age and prior to adolescence were more damaging and more predictive of a positive relationship between maltreatment and negative life outcomes – including antisocial behaviour (Braga et al., 2017; Fitton et al., 2020; Norman et al., 2012; Topitzes et al., 2012). The prospective data from the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) found that chronic maltreatment (i.e., multiple official allegations) prior to age 12 predicted growth in children’s externalising behaviours, and that chronic physical abuse increased aggression and delinquency at age 14 years (Li & Godinet, 2014; Logan-Greene & Jones, 2015). Stewart et al. (2008) found that maltreatment that started in adolescence was more predictive of later delinquency and criminal behaviour than maltreatment that occurred before adolescence.

Whilst this is only a snapshot of the research on the impact of the developmental timing of abuse, it illustrates that the notion of specific developmental hotspots for occurrence of maltreatment and subsequent increased risk of antisocial behaviour remains elusive. Mersky et al. (2012) concluded that “it is unsafe at any age” (p. 295).

7.1.2 Family, Parenting, and Socialisation

Overcontrolled individuals with convictions familial, parenting and peer relationship experiences have rarely been examined, and the extensive literature review in Chapter 4 revealed only nine studies that reported specifically on these critical socio-developmental experiences (Chambers et al., 2009, 2011; Frederiksen, 1975; Haven, 1972; Hershorn & Rosenbaum, 1991; Jensen, 2003; Megargee & Carbonell, 1993; Rawlings, 1973; Rosenzweig, 1978). Additionally, some studies commented upon social adjustment growing up, such as schooling experiences, occupational functioning and level of socialisation. Synthesising findings across these studies was difficult, with considerable heterogeneity in the measurement, methodological, and statistical procedures employed.

Forensic research has confirmed that compared to undercontrolled individuals, overcontrolled individuals with convictions tend to be more socialised and conforming (Haven, 1972; Lane & Spruill, 1980; Thebus, 2012), with better school adjustment and attainment (Chambers et al., 2009, 2011; Haven, 1972; Megargee, 1966; Megargee & Carbonell, 1993; McGurk, 1981; Widom, 1978). Work adjustment has also been found to be better amongst overcontrolled individuals with convictions, with a good work ethic revealed in and out of prison (Megargee, 1966; DeLisi et al., 2010; Haven, 1972; Low & Day, 2015; Megargee & Carbonell, 1993). Compared to undercontrolled individuals, they were also found to be more attentive to rules and moral standards, and they tend to hold more conservative views about moral and legal transgressions (Megargee, 1966; Thebus, 2012). These more conservative and moralistic attitudes are also reflected in attitudes to crime and actual antisocial behaviour. Overcontrolled individuals with convictions are also less likely to endorse crime-supportive beliefs in adulthood (Low & Day, 2015; Smith et al., 1987) and exhibit significantly less childhood/adolescent behavioural problems and criminal behaviour than undercontrolled individuals with convictions (Blackburn, 1986; Frederiksen, 1975; Jensen, 2003; Megargee & Carbonell, 1993; Truscott, 1990; White et al., 1973).

Early gains in adjustment noted for overcontrolled children growing up may not be carried forth into adulthood if overcontrolled coping becomes habitual (Lynch, 2018a; Megargee, 1966). Lynch, (2018a) theorised that persistent praise attached to achievement, successful emotional inhibition, conflict avoidance, and following rules may inadvertently strengthen the overcontrolled child's biotemperamental tendencies. For instance, regular praise for "being well behaved" and "social conformity", particularly if there is an absence of reinforcement for being spontaneous, will strengthen overcontrolled tendencies towards emotional inhibition, social cautiousness, and rule-governed behaviour.

Previously it is outlined how parental/care-giver unresponsiveness, hostility, absence, and/or abuse weakens attachment and can make children feel insecure, unimportant, anxious, and angry (Crittenden & Ainsworth, 1989; Cyr et al., 2010; Khoury et al., 2020). It is also well accepted that in response to abusive, unstable, chaotic, and neglectful parenting, children may develop psychological difficulties and problems with undercontrolled coping linked with antisocial behaviour (Linehan, 2015; Paris, 1997). Equally, Lynch's (2018a) theory of overcontrol suggests that chronic parental invalidation and parenting practices can lead to psychological difficulties and problems with overcontrolled coping. Previous chapters 2, 4 and 5 have linked this overcontrolled style of coping with a broad range of criminal behaviour.

Whilst childhood maltreatment perpetrated by parents/caregivers can have deleterious effects upon the developing child, other less obvious socio-developmental experiences can impact on the formation and emergence of maladaptive overcontrol. Lynch, (2018a) posited that maladaptive overcontrol evolves from a transaction between societal messaging, familial/parental overcontrol, parental invalidation, socio-environmental contingencies, and the child's overcontrolled biotemperamental system. The overcontrolled child's biotemperamental biases towards heightened threat, diminished reward, excessive inhibition, and detail-focused processing are intermittently reinforced by parenting practices, leading to habitual overcontrolled coping responses. If these socio-environmental contingencies persist throughout the lifespan, and normal displays of emotion and failures in self-control are punished, then habitual patterns associated with overcontrolled coping and internalising problems will start to form and strengthen. "Developmental researchers posited that overcontrol of emotional expression can become so habitual or biotemperamentally

strengthened that inhibited or disingenuous expressions occur even when a situation is safe” (Lynch, 2018a, p. 61). Emotional inhibition may emerge even in non-emotional contexts, resulting in these already constricted children looking even more awkward or “different” relative to their less anxious peers. If these overcontrolled tendencies persist through childhood and into adolescence, they can interfere “with the development of adaptive relationships through avoidance of social situations, frozen expressions in the presence of other’s affect, guarded responses, lack of spontaneity, and exaggerated prosocial or appropriate behaviour” (Lynch, 2014, p. 6). A vicious cycle may occur, whereby once-successful self-control strategies developed in childhood become so habitual in adolescence and adulthood that they create the conditions they were meant to avoid, such as social rejection and isolation. The probability of other difficulties occurring also increases, such as severe internalising disorders in adolescence and adulthood (Lynch & Cheavens, 2008; Lynch et al., 2020), and for some the risk of engagement in criminal behaviour (Megargee, 1966; Megargee & Carbonell, 1993).

7.1.3 Parenting Practices

Lynch, (2018a) conceptualises a transaction between habitual overcontrol and parental overprotection, parental modelling of overcontrolled coping, parental misattunement to age-appropriate requests for nurturance, and excessive parental expectations. Similarly, Lynch, (2018a) posited that direct and indirect parental messaging that persistently places a high value on self-control, social conformity, achievement, and correctness over social connectedness, would also strengthen overcontrol tendencies. Lynch, (2018a) also notes that avoidance of self- and other-derived negative evaluation becomes highly influential in maintaining a view of self as worthy and “good enough” for the overcontrolled person. The overcontrolled child’s underlying trait structure likely influences how they manage the anxiety and personal threat associated with negative evaluation (Turkat, 1985). According to Lynch (2018a), common responses that support the development of maladaptive overcontrol would include rigid and rule-governed behaviour to manage others’ expectations, avoidance of getting close to people, habitual agreeing to avoid conflict, compulsive inhibition of private desires and wants, compulsive approach coping (“fixing” others), and perfectionistic tendencies.

The parenting practices experienced by overcontrolled individuals with convictions when they were children, specifically by males, have only been examined in four studies. Whilst it is

difficult to draw firm conclusions, the research to date suggests that, compared to the parents of undercontrolled children with convictions, those of overcontrolled children tend to be more present in the home, prosocial, affluent, and better educated, and they are also more likely to promote educational attainment and be engaged in gainful employment (Chambers et al., 2009; Low & Day, 2015; Rawlings, 1973; Megargee & Carbonell, 1993). For instance, Rawlings (1973) found that mothers of “extreme assaulters” (a proxy overcontrolled sample) were more present at home and their fathers had more skilled employment compared to the “non-extreme assaulters” (a proxy undercontrolled group). Megargee and Carbonell (1993) similarly found that adult males who committed a single-episode violent offence (a proxy overcontrolled group) compared to those who committed repeated violent offences (a proxy undercontrolled group), experienced less parent–child tension growing up, more parental nurturance, appropriate parental discipline, and greater familial cohesion, and their fathers had a positive and constructive influence on their lives.

7.1.4 Hypotheses

This study examines the historical sociobiographical experiences of forensic in-patients identified as overcontrolled and contrasts their experiences with those of their undercontrolled counterparts. Pre-existing clinical data were used to explore differences in experiences of childhood maltreatment, stability of place/home and parenting growing up, school adjustment, and peer relationships. A systematic, detailed, and explicit methodology was used (see Appendix E and Chapter 3), and only officially recorded accounts of historical socio-developmental experiences were included. From prior research and Lynch’s (2018a) theory of maladaptive overcontrol, the following hypotheses are proposed.

1. **Childhood Maltreatment:** A history of poly-maltreatment will be present for both over- and undercontrolled individuals with convictions, and there will be no difference amongst groups in the pattern of childhood maltreatment (types, developmental timing, chronicity, and severity). Both over- and undercontrolled groups will exhibit high levels of current trauma symptomatology, as evident in clinically elevated PAI Anxiety Related Disorders-Trauma subscale scores upon hospital admission.

2. Childhood Instability:

- i) **Instability of Place/Home:** Compared to undercontrolled forensic in-patients, those categorised as overcontrolled will have experienced more stable living conditions growing up.
 - ii) **Instability of Caregiving:** Overcontrolled forensic in-patients will have experienced greater stability and more prosocial caregiving experiences growing up than those categorised as undercontrolled.
3. **School Adjustment:** Overcontrolled individuals will evidence better school adjustment than undercontrolled in-patients.
 4. **Peer Relationships:** Compared to their undercontrolled counterparts, overcontrolled individuals with convictions will be more likely to be described as a loner and be socially isolated, but they will be less likely to have engaged with antisocial peer groups across the lifespan.

7.2 Method

7.2.1 Sample

After data cleaning, the final sample consisted of 90 in-patients, with 54 (60%) classified as overcontrolled and 36 (40%) as undercontrolled. The overcontrolled sample's mean age at admission was 31.8 years ($SD = 7.25$; range 20–54 years), and for the undercontrolled sample the mean was 32.2 years ($SD = 9.65$; range 18–50 years). Most individuals in the undercontrolled sample were single (81.5%, $n = 44$), and their heritage of this group was predominantly White British (92.6%, $n = 50$), with one person of mixed heritage, an Irish traveller, and two unknowns. White British (88.9%, $n = 32$) also made up the majority of the overcontrolled sample, and there were two mixed-heritage and two Black British participants. Again, the majority declared their relationship status as single upon admission (91.7%, $n = 33$). Both groups tended to have no children (50.7%, $n = 36$), and this information was not recorded for 22 cases. The mean length of stay in the high-security hospital was 68.5 months ($SD = 54.9$) for the undercontrolled sample and 89.2 months ($SD = 54.8$) for the overcontrolled sample. This difference was not statistically significant, $t(88) = -1.868$, $p = .065$. Both groups came

from similar-sized families, and the average number of children (including participant) per family for the undercontrolled group was $M = 3.85$ ($SD = 2.91$; range 0–12 people), and for the overcontrolled group this was $M = 3.83$ ($SD = 2.97$; range 1–7 people). Both groups had a median of 2 for sibling order within their families.

7.2.2 Sources of Information and Data-Collection Procedure

This study is based on analysis of the same anonymised routinely collected clinical and forensic information as used in Chapters 5 and 6. These data were drawn from a pre-existing clinical database, and additional information about missing data was requested from the Unit's Assessment and Treatment Co-ordinator at the point of data cleaning.

7.2.3 Dependent Variables

The dependent variable was a dichotomous variable indicating whether an individual was classified as over- or undercontrolled based on a combination of personality disorder diagnosis and expert ratings. The same two-stage sample-classification process described in Chapter 3 (§3.6.4, p. 102) of this thesis was applied. As noted above, the final sample of 90 consisted of 54 (60%) undercontrolled and 36 (40%) overcontrolled forensic in-patients.

7.2.4 Independent Variables

Demographic Variables: The anonymised demographic information selected from the database for each of the participants included their age at admission, nationality, ethnicity, date of birth, admission date, discharge date, and marital status.

The **Personality Assessment Inventory (PAI; Morey, 1991)** was administered by an assistant psychologist under the supervision of a qualified psychologist. The PAI is a 344-item self-report measure with 22 scales, and these provide information relevant to screening of psychopathology (11 clinical scales), treatment engagement ($n = 5$), and validity ($n = 4$), and there are two interpersonal scales. Each item is rated on a 4-point *very true* to *false* scale. Based on the current hypothesis, only the Anxiety Related Disorders-Trauma (ARD-T) PAI subscale was selected. The ARD-T reflects the extent to which a previous traumatic event may be continuing to elicit distress.

7.2.5 *Historical Sociobiographical Variables*

Sociobiographical experiences were drawn from historical information in the admission assessment report. A structured data-collection protocol was used by the host organisation to extract relevant sociobiographical information (Appendix E), and there was an accompanying coding book (Appendix E, 9.5.8). The coding book was incomplete, but it operationalised some of the key concepts and provided information on how to rate variables, in particular those linked to childhood maltreatment.

Childhood Maltreatment: In this study, the term “childhood maltreatment” was an umbrella term capturing seven types of abuse. The definitions of six of these seven types of maltreatment were taken from the Modified Maltreatment Classification System (MMCS; Barnett et al., 1993; English & LONGSCAN Investigators, 1997). The MMCS is a well-recognised and standardised tool previously used for case-record analysis (Huffhines et al., 2016). A seventh category, “Chronic Invalidation”, was added to the MMCS categories, and this was developed to reflect the societal, parenting, and familial experiences thought to intermittently support the formation and strengthening of compulsive overcontrolled coping (Lynch, 2018a). The coding book accompanying the extraction tool has more detailed definitions and clear rating procedures, but the key types of abuse and the descriptors of these outlined in the MMCS manual were rated as either present (score 1) or absent (score 0). A severity rating based on the MMCS guidance for each type of abuse was also recorded, and there was specific scoring guidance for each abuse type. The types of childhood maltreatment studied in this paper are defined below.

1. **Physical Abuse** is coded when a caregiver or responsible adult inflicts physical injury upon a child by means that are not accidental. This includes such acts as striking, kicking, and burning perpetrated by a parent or caregiver or responsible adult, e.g., a teacher.
2. **Sexual Abuse** refers to any sexual contact or attempt at sexual contact that occurs between a caregiver or other responsible adult and a child for the purpose of the caregiver’s sexual gratification or financial benefit to the perpetrator (Barnett et al., 1993). This includes molestation, statutory rape, prostitution, pornography, exposure, incest, or other sexually exploitative activities.

3. **Physical Neglect** is defined as a failure to exercise a minimum degree of care or to implement adequate precautions to meet a child's physical needs and safety (Barnett et al., 1993). It includes "Failure to Provide", adequate food, clothing, shelter, medical/dental/mental health care, and hygiene, as well as "Lack of Supervision", which includes general supervision, environmental supervision, and supervision provided when in substitute care, e.g., a babysitter.
4. **Emotional Maltreatment** covers all persistent or extreme acts that thwart a child's basic emotional needs. It includes "Psychological Safety and Security", which is the need for a family environment free from excessive hostility and violence and the need for an available and stable attachment figure. "Acceptance and Self-Esteem" is the need for positive regard and the absence of excessively negative or unrealistic evaluation given the child's particular developmental level. Finally, "Age-Appropriate Autonomy" includes the need to explore the environment and extrafamilial relationships, to individuate within the bounds of parental acceptance, structure, and limit setting, without developmentally inappropriate responsibility or constraints being placed on the child.
5. **Moral-Legal Maltreatment** is defined as a caregiver encouraging a child to engage in criminal behaviour or actively involving them in such behaviour (English & LONGSCAN Investigators, 1997).
6. **Educational Maltreatment** is defined as a caregiver encouraging a child not to attend education or actively keeping them out of education (English & LONGSCAN Investigators, 1997).
7. **Chronic Invalidation** is characterised by a highly critical and emotionally invalidating developmental environment (Barnett et al., 1993; Crowell et al., 2009).), which reinforces overcontrolled biotemperamental biases and emotionally inhibited coping. This total score includes: parental overprotection; parental punishment or parental distress in response to the child's displays of emotion; excessive criticism or emphasis on correctness over emotional care; strict/harsh and overly rule-bound parenting; parenting practices that promote perfectionism and place a high value on achievement; and parenting practices modelling excessive inhibition and use of social comparison to self-regulate. It may also include punishment for playful spontaneity and age-

appropriate requests for nurturance, as well as age-inappropriate responsibility, e.g., being a pseudo-parent to younger siblings.

School Adjustment: Based on Wentzel's (2012) definition, school adjustment is defined as a social motivation in the form of social-goal pursuit, behavioural competence, and positive interpersonal relationships in a school-related context. In this study, the school adjustment variable was calculated from pre-existing categorical (yes/no) variables linked to questions about attainment of formal qualifications, completion of secondary school, positive relationships with teachers, behaviour and peer relationships at primary and secondary school. The categorical variables were summed to produce a total school-adjustment score with a range of 0–22, with higher scores being suggestive of poorer school adjustment.

Childhood Instability: Stability of place and primary caregiver(s) is thought to be essential for enabling children and young people to thrive and form positive, trusting relationships (Munro & Hardy, 2006). A total childhood instability score was calculated by summing categorical variables attached to themes stability of place/home or the stability of caregiving. These were defined as:

- **Stability of Place/Home**, which includes stability of home and school as well as stability within the actual home environment, indicates one free from abuse and regular familial conflict/tensions (Munro & Hardy, 2006). In this study, the pre-existing data included the following categorical (yes/no) variables, which were combined to produce a proxy measure of stability of place/home growing up: lived with both parents until 16 years (reverse scored); frequent primary and/or secondary school changes; educational maltreatment; multiple home moves; taken into care/foster care; multiple care/foster care placements; multiple incidents of running away from caregivers; witnessed domestic violence between caregivers; bullying in the home/caregiving place; and parental/caregiver abuse. These categorical variables were summed to produce a total stability of place/home growing up score, with a score range of 0–9. Higher scores were suggestive of greater childhood instability.
- **Stability of Caregiving** includes the stability of the primary or permanent caregiver, who can act as a secure attachment whilst growing up (Munro & Hardy, 2006). In this study,

pre-existing data from official reports were used to assess this stability of the caregiving experience. These data included the following categorical (yes/no) variables, and these were combined to produce a proxy measure of stability and prosocial caregiving growing up: lived with both biological parents present until at least age 16 years (reverse scored); experienced a loving parent–child relationship (reverse scored); parental/caregiver unresponsiveness or hostility; parental/caregiver rejection; death of a parent/primary caregiver; parental mental health conditions, drug/alcohol problems, divorce, or infidelity; and parents/primary caregiver/family involved in criminality. The categorical variables were summed to produce a total stability of caregiving experience score with a range of 0–13, higher scores being suggestive of greater childhood instability.

Nature of Peer Relationships: This study used pre-existing data drawn from official reports, with categorical (yes/no) variables used to confirm or disconfirm the presence of each relational variable. These were: participant described as being a loner or socially isolated; evidence of prosocial friends/support network; involvement with gangs; antisocial peer group under 18; and/or antisocial peer group over 18.

7.2.6 Procedure

Ethical approval was obtained for the study from Nottingham Trent University’s Business, Law and Social Sciences Research Ethics Committee (No. 2016/102), and Nottinghamshire Healthcare NHS Foundation Trust Research and Development Committee.

7.2.7 Data-Analytic Plan

Data were obtained in an Excel format and converted to SPSS 23 format for statistical analyses. Due to limitations in the data such as missing values, the dataset was subsequently cleaned.

A total of 33 cases were removed: 21 cases had insufficient socio-developmental experiences and another 12 had no under- or overcontrolled classification recorded. Other missing data were addressed by removing cases from each analysis using a pairwise process. Prior to analysis, the data were checked for normality and outliers. Outliers were present, as expected given the clinical nature of the research. Boxplots and Kolmogorov–Smirnov tests revealed that the scores on some measures were not normally distributed, and in these cases,

nonparametric statistics were used whenever appropriate. Bivariate analyses using chi-square and Mann Whitney U tests were conducted, to analyse the relationships between the independent variables identified above and the dependent variable, over- and undercontrolled personality.

7.3 Results

The types of childhood maltreatment experienced, patterns in abuse, and the relationships between the victims and perpetrators were examined, along with familial, school, and peer-relationship experiences growing up.

7.3.1 Childhood Maltreatment

Based on officially documented accounts, everyone in the sample reported at least one type of maltreatment experience in childhood and/or adolescence. Poly-maltreatment was the norm, with overcontrolled ($M = 3.06$, $SD = 3.59$) and undercontrolled ($M = 3.69$, $SD = 1.64$) individuals experiencing a mean of three out of the six forms of maltreatment assessed. A combination of sexual abuse, physical abuse, and emotional maltreatment were the next most common combinations of childhood maltreatment, with 30.6% of overcontrolled and 24.1% of undercontrolled participants experiencing these types of abuse. All four types of abuse – physical, sexual, and emotional abuse, along with neglect – were experienced by 35.2% of undercontrolled and 19.4% of overcontrolled participants. The levels of current trauma symptoms at the time of admission were also high, with PAI:ARD-T scores suggesting clinically elevated levels of trauma symptomatology (Morey, 1991). The mean ARD *T*-scores for the overcontrolled and undercontrolled groups were $M = 69.1$ ($SD = 18.9$) and $M = 72.6$ ($SD = 16.3$), respectively. The difference in ARD-T scores was not clinically significant, $t(70) = 0.745$, $p = .459$.

7.3.2 Physical Abuse

Table 15: Physical Maltreatment History

	UC % (n)	OC % (n)	Chi-Square
Experienced physical maltreatment	77.8 (42)	75.0 (27)	–
Developmental timing			
Childhood only (10 and under)	39.5 (15)	36.0 (9)	–
Adolescence only (11–16 years)	5.3 (2)	–	–
Childhood & adolescence (0–16 years)	55.2 (21)	64.0 (16)	–
Chronicity of abuse			
Frequent–very frequent	83.8 (31)	81.8 (18)	–
Occasional	13.5 (5)	18.2 (4)	–
Rare	2.7 (1)	–	–
Perpetrated by			
Biological parent(s)	71.4 (30)	64.0 (16)	–
Step-parent or family member	28.6 (12)	50.0 (13)	$\chi^2(1, N = 69) = 3.172, p = .075$
Paid carer or person in authority (teacher)	47.6 (20)	40.0 (10)	–
Multiple people at different times	57.1 (24)	44.0 (11)	–

Table 15 summarises the physical maltreatment histories of the participants. Both over- and undercontrolled groups experienced high levels of physical abuse, and this tended to be chronic across childhood and adolescence. The perpetrators of the physical abuse tended to be a biological parent(s) and/or a step-parent/other family member. There was a trend that overcontrolled individuals were more likely to be physically abused by a step-parent/other family member than undercontrolled men with convictions, but this difference was not statistically significant. Being physically abused by multiple people whilst growing up was common in both groups. The median MMCS severity rating for physical abuse experience was 3 for both groups, which refers to “numerous or non-minor marks (serious scratches, cuts, or bruises)”. The range for the undercontrolled group on the MMCS severity ratings were 1 (“dangerous acts, but no marks indicated”) to 5 (“hospitalised more than 24 hours – concussion/monitored in hospital for several days”). The overcontrolled group had a smaller range of 1 to 4 (“medical/emergency treatment; hospitalised less than 24 hours – goes to emergency room”). Physical abuse tended to be chronic and severe for both groups of forensic in-patients.

7.3.3 Sexual Abuse

Table 16: Sexual Maltreatment History

	UC % (n)	OC % (n)
Experienced sexual maltreatment	77.8 (42)	61.1 (22)
Developmental timing		
Childhood only (10 and under)	28.9 (11)	23.8 (5)
Adolescence only (11–16 years)	39.5 (15)	23.8 (5)
Childhood & adolescence (0–16 years)	31.6 (12)	52.4 (11)
Chronicity of sexual abuse		
Frequent–very frequent	82.4 (28)	94.7 (18)
Occasional	8.8 (3)	5.3 (1)
Rare	8.8 (3)	–
Perpetrated by		
Biological parent(s)	24.3 (9)	20.0 (4)
Step-parent or family member	36.8 (14)	50.0 (10)
Paid carer/person in authority (teacher)	48.7 (19)	55.0 (11)
Multiple perpetrators	71.8 (28)	73.7 (14)

Table 16 summarises the sexual maltreatment histories of the participants. Both over- and undercontrolled groups experienced high levels of sexual abuse, and this tended to be chronic across childhood and adolescence, especially for overcontrolled participants. Multiple perpetrators of the sexual abuse were most likely, with step-parents/other family members and/or paid carers more likely to have perpetrated the sexual abuse than biological parents. The median MMCS severity rating for sexual abuse experience was 4 ($n = 4$) for both groups (“the caregiver physically attempts to penetrate the child or actually penetrates the child sexually. This includes coitus, oral sex, anal sex, or any other form of sodomy”). The range on the MMCS severity ratings was the same for both groups, which was from 3 (“the caregiver engages the child in mutual sexual touching, or has the child touch the caregiver for sexual gratification. The caregiver touches the child for sexual gratification, ... engages in mutual masturbation with the child”) to 5 (“the caregiver has forced intercourse or other forms of sexual penetration. ... Caregiver prostitutes the child, ties child to bed and rapes child, sodomises the child at gunpoint, forces the child to participate in filming pornographic movies, invites one/more partners to have sexual relations with the child”).

7.3.4 Physical Neglect

Table 17: Physical Neglect

	UC % (n)	OC % (n)	Chi-Square
Experienced physical neglect	71.3 (25)	28.6 (10)	$\chi^2(1, N = 35) = 4.233, p = .040$
Failure to provide safety	44.9 (22)	25.7 (9)	$\chi^2(1, N = 31) = 3.227, p = .072$
Supervisory neglect	41.7 (20)	25.7 (9)	–
Developmental timing			
Childhood only (10 and under)	72.2 (13)	88.9 (8)	–
Adolescence only (11–16 years)	27.8 (5)	11.1 (1)	–
Childhood & adolescence (0–16 years)	–	–	–
Chronicity of physical neglect			
Frequent–very frequent	87.5 (14)	87.5 (7)	–
Occasional	6.3 (1)	12.5 (1)	–
Rare	6.3 (1)	–	–
Perpetrated by			
Biological parent(s)	95.0 (19)	100.0 (9)	–
Step-parent or family member	20.0 (4)	44.4 (4)	$\chi^2(1, N = 28) = 1.857, p = .173$
Person in authority (teacher/carer)	15.0 (3)	22.2 (2)	–
Multiple perpetrators	15.0 (3)	22.2 (2)	–

Table 17 summarises the physical neglect histories of the participants. Undercontrolled participants were significantly more likely to experience some form of physical neglect, but there were no statistically significant differences in the frequencies of physical neglect subtypes. The developmental timing was more likely to be childhood only, and where it did occur, the physical neglect was mostly chronic, occurring frequently–very frequently. Physical neglect was most likely to be perpetrated by biological parent(s), and typically not by multiple perpetrators. There was a trend that overcontrolled individuals were more likely to be neglected by a step-parent/other family member than undercontrolled men with convictions, but this difference was not statistically significant. The MMCS severity of the physical neglect could not be rated, as over 90% was missing on the database.

7.3.5 Emotional Maltreatment

Table 18: Emotional Maltreatment

	UC % (n)	OC % (n)
Experienced emotional maltreatment	98.0 (48)	100.0 (35)
EM Physical Safety & Security	93.9 (46)	88.6 (31)
EM Acceptance & Self-Esteem	88.9 (40)	79.4 (27)
EM Age-Appropriate Autonomy	58.3 (14)	41.7 (10)
Developmental timing		
Childhood only (10 and under)	53.8 (21)	38.5 (10)
Adolescence only (11–16 years)	7.7 (3)	11.5 (3)
Childhood & adolescence (0–16 years)	38.5 (15)	50.0 (13)
Chronicity of emotional maltreatment		
Frequent–very frequent	82.9 (29)	88.7 (24)
Occasional	17.1 (6)	11.1 (3)
Rare	–	–
Perpetrated by		
Biological parent(s)	91.4 (32)	86.2 (25)
Step-parent or family member	42.9 (15)	41.4 (12)
Paid carer or person in authority (teacher)	34.3 (12)	27.6 (8)
Multiple perpetrators	37.1 (13)	24.1 (7)

Table 18 summarises the emotional maltreatment histories of the participants. Almost all the over- and undercontrolled participants experienced emotional maltreatment, which most likely involved parent(s)/parent substitute(s) failing to provide a sufficiently stable attachment figure who provided positive regard and an emotionally safe family environment that was free of excessive hostility and violence. Emotional abuse was more likely to occur for both groups in childhood or childhood and adolescence, with very few experiencing it in adolescence only. The perpetrators of the abuse were again mostly biological parents or step-parents/other family members. The MMCS severity of the emotional abuse could not be rated, as detailed data about the nature of the actual emotional maltreatment was not consistently recorded on the database.

7.3.6 Childhood Instability

This variable includes two components – stability of place and stability of caregiver – and these will each be examined using the pre-existing data available.

Table 19: Stability of Place Growing Up

	UC	OC	Test of Differences
Overall stability of place score	Med. (IR) 7.00 (6)	Med. (IR) 7.00 (5)	$U= 806.5, z = -1.17, p = .244$
	% (n)	% (n)	
Family moved around a lot	20.8 (10)	44.8 (13)	$\chi^2(1, N = 23) = 4.968, p = .026$
Multiple school moves	69.8 (37)	61.1 (22)	–
Bullying within the family	71.7 (23)	66.7 (22)	–
Witnessed domestic violence	59.1 (26)	65.5 (19)	–
Ran away from home or care placements	79.2 (42)	53.1 (17)	$\chi^2(1, N = 59) = 6.412, p = .011$
Placed in care	82.7 (43)	55.6 (20)	$\chi^2(1, N = 63) = 7.702, p = .006$
Multiple out-of-home placements	60.4 (32)	38.2 (13)	$\chi^2(1, N = 45) = 4.067, p = .044$
Institutional abuse (sexual, physical, neglect, or emotional)	53.8 (28)	50.0 (14)	–
One or both parents worked regularly	40.7 (22)	30.6 (11)	–
Grew up in a deprived area	65.3 (32)	46.9 (15)	–

Median (Interquartile range)

Table 19 summarises the levels of stability of place experienced by the participants while growing up. The overall score for stability of place growing up was not significantly different between over- and undercontrolled participants, and both scored highly, suggesting considerable childhood instability. Overcontrolled children were significantly more likely to have experienced multiple family moves growing up than undercontrolled children, with both groups experiencing similar levels of school moves. Undercontrolled participants were significantly more likely to be placed in local authority care or with foster carers and experience multiple out-of-home placements. Undercontrolled children were also significantly more likely to run away from home or care placements.

Table 20: Stability of Caregiver Growing Up

	UC	OC	Test of Differences
Overall stability of caregiver score	Med. (IR) 8.00 (4)	Med. (IR) 8.00 (4)	$U = 801.0, z = -1.41, p = .156$
	% (n)	% (n)	
Did not live with both parents until 16	13.2 (46)	13.9 (31)	–
Parental rejection	73.1 (38)	70.6 (24)	–
Experienced multiple caregivers before 12	73.1 (38)	52.8 (19)	$\chi^2(1, N = 57) = 3.84, p = .050$
Parental drug/alcohol abuse	55.8 (24)	42.3 (11)	–
Parental mental health issues (diagnosed)	57.8 (26)	29.6 (8)	$\chi^2(1, N = 34) = 5.37, p = .021$
Parental infidelity	15.0 (6)	29.2 (7)	–
Parental divorce	41.9 (18)	62.1 (18)	–
Parental criminality	76.9 (40)	58.8 (20)	$\chi^2(1, N = 60) = 3.19, p = .074$
Moral & legal maltreatment	50.0 (24)	23.5 (8)	$\chi^2(1, N = 32) = 5.86, p = .015$
At least one parent loving & warm	30.6 (34)	35.3 (22)	–
At least one parent unresponsive/hostile	77.6 (38)	75.0 (24)	–
Inconsistent parenting	74.5 (35)	54.8 (17)	$\chi^2(1, N = 52) = 3.24, p = .072$

Table 20 summarises the levels of stability of caregiver experienced by the participants while growing up. The overall scores for the stability of caregiver environment were not significantly different for over- and undercontrolled participants, with both lacking stable caregivers. Overcontrolled children were less likely to experience multiple caregivers before 12 years of age, and their caregiver figures were on the whole more stable. Overcontrolled participants' parents were significantly less likely to have been diagnosed with mental health issues and were less likely to inflict moral and legal maltreatment upon their offspring.

7.3.7 School Adjustment

Table 21: School Adjustment

	UC	OC	Test of Differences
	<i>Med. (IR)</i>	<i>Med. (IR)</i>	
Overall school adjustment score	10.5 (8)	7.00 (9)	$U = 715.5, z = -2.11, p = .03$
Primary school adjustment	3.28 (2.42)	2.71 (2.41)	$U = 766.5, z = -1.19, p = .24$
Secondary school adjustment	4.85 (2.00)	3.92 (2.37)	$U = 733.0, z = -1.86, p = .062$
School leaving age	14.7 (1.65)	15.2 (1.63)	–
	% (n)	% (n)	
Left school without formal qualifications	92.6 (50)	83.3 (30)	–
Did not complete secondary school	75.5 (40)	61.1 (22)	–
Specialist education, behavioural problems	74.1 (40)	41.7 (15)	$\chi^2(1, N = 55) = 9.55, p = .002$
Poor teacher–pupil relationships	73.8 (31)	26.2 (11)	$\chi^2(1, N = 42) = 8.34, p = .004$
Educational maltreatment	37.5 (18)	23.5 (8)	–

Table 21 summarises the school adjustment levels of the participants. Overall school adjustment was significantly different for the under- and overcontrolled groups, with the former experiencing poor school adjustment. School adjustment appeared similar in primary school for both groups, but it appeared to deteriorate for the undercontrolled group when the participants moved to secondary school. Both groups typically left education prior to 16 years, and often before completing secondary school or gaining qualifications. Undercontrolled participants were more likely to have difficult relationships with their teachers and to be referred to specialist education, such as being home schooled after exclusion or sent to residential/boarding schools that managed challenging behaviour. Both groups experienced similar levels of educational maltreatment.

7.3.8 Peer Relationships

Table 22: Nature of Peer Relationships

	UC % (n)	OC % (n)	Test of Differences
Evidence of prosocial friends/support network	26.9 (14)	25.0 (9)	–
Described as a loner or socially isolated	36.5 (19)	63.9 (23)	$\chi^2(1, N = 42) = 6.72, p = .035$
Involved in gangs growing up	28.8 (15)	13.9 (5)	–
Antisocial peer group under 18	73.1 (38)	38.9 (14)	$\chi^2(1, N = 53) = 10.29, p < .001$
Antisocial peer group over 18	71.2 (37)	27.8(10)	$\chi^2(1, N = 47) = 16.08, p < .001$

Table 22 summarises the nature of the participants' peer relationships. Overcontrolled participants were significantly more likely to be described as a loner or socially isolated, and they were significantly less likely to be involved with antisocial peer groups as young people or adults. Both groups had limited access to prosocial social support growing up.

7.4 Discussion

This study revisited the idea of a behaviourally overcontrolled pathway to offending, exploring a specific set of historical sociobiographical influences thought by Lynch (2018a) to intermittently reinforce overcontrolled biotemperamental biases, resulting in the emergence and maintenance of maladaptive overcontrolled coping. Pre-existing clinical data were used to explore forensic in-patients' experiences of childhood maltreatment, childhood instability, peer relationships, and adjustment at school. There was little information available about parenting practices, which meant that a core aspect of Lynch's nurture component could not be tested. The findings from this study are presented below and placed in the context of existing research.

7.4.1 Childhood Maltreatment

The types of childhood maltreatment, patterns of abuse, and relationships between victim and perpetrator were examined. Based on prior research, it was hypothesised that both over- and undercontrolled individuals would have experienced poly-maltreatment growing up, and this finding was confirmed. All patients had experienced at least one of the six forms of abuse defined in the MMCS, with most experiencing three or more. The most common combinations of abuse experienced by overcontrolled in-patients were sexual, physical, and/or emotional

abuse, and this was typically inflicted by multiple perpetrators, both within and outside the home environment. Physical neglect was less common than other forms of abuse, with undercontrolled in-patients significantly more likely than overcontrolled in-patients to have been physically neglected by parents or other caregivers during childhood.

There were no differences in the patterns of physical neglect, physical abuse, sexual abuse, and emotional abuse experienced by forensic in-patients identified as over- and undercontrolled. When abuse occurred, it was typically chronic. Forensic in-patients, regardless of personality style, often had abuse inflicted upon them frequently or very frequently, and typically these abusive experiences were repeated across childhood and then into adolescence. The severity of the abuse was not always known, as the data were often missing or of insufficient detail to permit classification. It is unclear whether this reflects an extraction problem, that is, whether those who populated the database were not sufficiently proficient in classifying maltreatment experiences or whether there was a lack of consistent reporting in the original source material, i.e., social workers' reports. This is a common problem when using pre-existing clinical data and historical records (Weiner & Embi, 2009; Weiskopf & Weng, 2013). Where it was possible to rate the severity of abuse using the MMCS ratings, it was found that both over- and undercontrolled forensic in-patients' historical experiences of childhood maltreatment were often severe.

In summary, the childhood maltreatment experienced by both over- and undercontrolled forensic in-patients typically involved poly-maltreatment, and this was severe, chronic, and perpetrated by someone who should have cared for and protected them. They were also unlikely to have recovered from these historical experiences, with current PTSD symptomology (PAI ARD-T scale) upon admission still in the clinically elevated range. Neither childhood maltreatment nor PTSD symptoms appeared to distinguish between over- and undercontrolled individuals.

Based on the findings of this study, it seems unlikely that childhood maltreatment causes overcontrol, as both groups of participants came from very abusive backgrounds. The nurture component of Lynch's (2018a) theory may be less potent in explaining maladaptive overcontrol than the genotypic biotemperamental system, however phenotypic expression is likely influenced by maltreatment experiences. The unique biotemperamental biases posited to

be associated with over- and undercontrol likely impact how these maltreatment experiences are psychologically received, processed, and then behaviourally expressed. Future work is needed to disentangle the relationship between maltreatment and the aetiology of overcontrol and its associated coping tendencies.

7.4.2 *Childhood Instability*

The hypothesis that overcontrolled forensic in-patients would have experienced more stable living conditions growing up than their undercontrolled counterparts was not confirmed. The information gleaned from official records and clinical databases about the participants' home environments indicated that both over- and undercontrolled participants' upbringings were characterised by both abuse and instability. There was no evidence that overcontrolled individuals' home environments were less abusive, tense, or conflictual than those of undercontrolled in-patients. This does not confirm the findings of prior research, which has suggested that overcontrolled individuals will be more likely to have experienced greater familial cohesion and less parental tension than their undercontrolled counterparts (Megargee & Carbonell, 1993; Rawlings, 1973). There was insufficient information about specific parenting styles or practices in the home environment to confirm or disconfirm the previous finding that parents of overcontrolled individuals with convictions tended to verbally emphasise obedience and conformity rather than using physical aggression to ensure compliance (Frederiksen, 1975; Hershorn & Rosenbaum, 1991; Rosenzweig, 1978).

Both groups experienced considerable instability in where they lived growing up. Overcontrolled individuals' changes in home location tended to occur in the context of family moves, whereas undercontrolled in-patients tended to have moved around a lot following parental rejection and/or familial exclusion. As children, undercontrolled in-patients were much more likely to have experienced out-of-home placements, such as a permanent move to local authority care or foster carers, and these arrangements often broke down, resulting in multiple placements. Moreover, when these over- and undercontrolled children were placed in care/out-of-home placements, over half of them experienced institutional abuses. The idea that environmental instability, broken caregiver attachments, and institutional abuse are particularly corrosive to prosocial adjustment is supported (Brännström, et al., 2017; Carr et al., 2020a, 2020b); however, none of these factors seems to specifically differentiate between over- and

undercontrolled individuals. Undercontrolled individuals were, however, more likely than overcontrolled individuals to have run away from home/out-of-home placements whilst growing up. This may reflect the differences in self-control tendencies, i.e., undercontrolled individuals acted out, resulting in them being taken into care, whereas perhaps overcontrolled in-patients stayed in an abusive home/care environment and endured the abuse.

It was hypothesised that, compared to undercontrolled forensic in-patients, overcontrolled participants would have experienced greater stability and more prosocial caregiving experiences growing up, but this was not confirmed. Growing up, the majority of participants experienced parental/caregiver rejection at least once during childhood (before 16 years of age). There were also no differences between groups in experiences of parental divorce, infidelity, criminality, consistency of parenting practices, or the nature of parent–child relationships. Undercontrolled participants were, however, much more likely to have experienced multiple changes in caregivers before the age of 12 years compared to overcontrolled participants. They were also significantly more likely to have had at least one parent who had a diagnosable mental disorder, and they were more likely to be encouraged by a parent/caregiver to get involved in antisocial or criminal behaviour whilst growing up. Overcontrolled in-patients were more likely to have had access to consistent caregivers; however, given the high prevalence of abuse and instability at home, the quality of this relationship was unlikely to have been adequate to provide emotional, physical, and psychological safety.

7.4.3 School Adjustment

Overcontrolled individuals were posited to evidence better school adjustment than undercontrolled in-patients, and this hypothesis was partially supported. School attainment was poor for both groups, as the majority of participants did not complete secondary school and left with no formal qualifications prior to age 16 years. This was contrary to prior findings, which found that overcontrolled individuals in prison had better school attainment than undercontrolled prisoners (Megargee & Carbonell, 1993).

Throughout their school careers, overcontrolled in-patients were reported to have better relationships with teachers than undercontrolled in-patients, and their overall adjustment and

behaviour at school were also better. Over- and undercontrolled individuals evidenced similar levels of difficulties at junior and senior school. The severity of maladjustment appears to have been worse for undercontrolled in-patients, as they were significantly more likely to be referred to specialist education facilities for children/adolescents with challenging and difficult behavioural problems. Whilst previous research has not examined differences in adjustment between junior and secondary schools, these findings support research that found better overall school adjustment amongst overcontrolled individuals with convictions (Haven, 1972; Megargee, 1966; Megargee & Carbonell, 1993; McGurk, 1981; Widom, 1978). Educational maltreatment was equally likely to have been experienced by both over- and undercontrolled participants, which was counter to expectation.

7.4.4 Peer Relationships

Compared to undercontrolled individuals with convictions, their overcontrolled counterparts were posited to be loners who were socially isolated, and this hypothesis was supported. There was no difference in bullying experiences between over- and undercontrolled individuals, contrary to Lynch's hypothesis that being the victim of bullying may be more likely amongst overcontrolled individuals. Both groups had access to prosocial friends, but undercontrolled individuals were more likely to have had antisocial friendship groups throughout their lives. There were no differences between groups in self-reported gang affiliation.

7.5 Limitations

The findings of this study should be considered in light of its limitations. Whilst there are sound ethical reasons for the retrospective design and use of pre-existing data, this approach has serious limitations as outlined in Chapter two and previous research (Weiner & Embi, 2009; Weiskopf & Weng, 2013). The common problem with using pre-existing data is incompleteness and this was present in this dataset (Weiner & Embi, 2009; Weiskopf & Weng, 2013), consequently some hypotheses linked to Lynch's socio-developmental component of overcontrol could not be tested. Specifically, detailed analysis of the hypothesis that "parenting practices" perpetuate biotemperamental biases, and the posited link between maladaptive overcontrol and parental overprotection, parental modelling of overcontrolled coping and parental messaging emphasising the need to act calm, be in control, follow rules, be correct,

hide emotions, and be the best. (Lynch, 2015 Chapter 2, no page number). Secondly, the reliability of the data was likely undermined by poor operationalisations of the variables in the database coding book, which would affect the consistency of the data extraction process. This weakness relates mostly to variables in the study, except maltreatment which used the widely accepted MMCS tool to guide data extraction of maltreatment data from the professional reports (Huffhines et al., 2016). Thirdly, socio-developmental variables on the pre-existing databases were primarily categorical, with no overarching theory stated in the coding book to guide how these variables could be integrated into overarching constructs amenable to more sophisticated statistical analysis. There were however section titles, such as educational background, family history, relationship history and employment history, which were used in conjunction with the actual data available to develop a post hoc data integration plan to help transform and analyse the data (Appendix E). This post hoc synthesis of data to produce meaningful constructs was not optimal, and they are at best incomplete proxy measures of the constructs of interest. This limitation relates specifically to the constructs of school adjustment, peer relationships, childhood instability and employment history.

Despite its limitations this study is the first study ever produced to systematically examine historic maltreatment experiences of forensic individuals identified as overcontrolled, as well as examining the previously understudied area of child-rearing experiences and maladaptive overcontrol. Notably this study indicated that childhood maltreatment may not play a critical role in the development of maladaptive overcontrol, which confirms Lynch's idea that socio-environmental contingencies which are posited to shape the biotemperamental tendencies are probably more important for the development of maladaptive overcontrol than actual incidences of abuse. The occurrence of maltreatment, according to the findings from this study, is clearly not a distinguishing factor between over- and under- controlled participants in a forensic setting. Both groups in this study came from what would be considered by most people very poor and typically abusive backgrounds, and these findings confirm Blackburn et al. (2008) who also found no difference between over- and under- controlled groups self-reported experiences of childhood abuse. Whilst both groups evidently had turbulent experiences growing up, it is unclear how they construed or made sense of these life events, and this is something a qualitative approach would help elucidate. This study also indicates that despite similar levels of maltreatment, in adolescence the response to this changed, with overcontrolled

individuals with convictions significantly less likely to act out in school, within the family and legally. They were also less likely to be taken into permanent care of social services, despite experiencing comparable levels of abuse. Perhaps, as Lynch's theory predicts, overcontrolled individuals quietly endure these toxic environments and abusive relationships, with emotional leakage coming well after the initially injures were incurred. This would concur with Chambers et al. (2009) who found that individuals who had committed a violent offence and identified as overcontrolled often stayed in abusive relationships for years before acting out against these partners.

Further work is urgently needed to develop our understanding of how experiences growing up may relate to development of maladaptive overcontrol, and this work should be guided by theory, reliable and valid measurement tools and preferably involve primary data collection. Mixed methods (Howells, 1983) and qualitative studies (Chambers et al. 2009; 2011) have also provided valuable insights into the socio-developmental experiences of overcontrolled individuals, and perhaps these methods could help disentangle the socio-environmental contingencies which are critical in shaping the phenotypic expression of overcontrol amongst individuals who go onto to offend. This detailed work would help develop an understanding of the overcontrol pathway to offending, in much the same way we have for undercontrolled/externalising pathways to crime and associated behaviours (e.g. drug use). Future studies should also aim to specifically test the parenting hypothesis embedded in Lynch's theory, with the pioneering work of Gilbert et al. (2019) providing useful designs and approaches, specifically with younger children identified as exhibiting significant overcontrolled characteristics. Perhaps early intervention may prevent the need for later intervention in forensic services, given the consistent finding of much later onset of antisocial and violent behaviour for overcontrolled individuals.

Chapter 8: Discussion & Recommendations

This thesis has rebutted the claim that all offending is driven by undercontrolled coping, and convincing arguments have been put forward in previous chapters that a substantial proportion of individuals who have committed violent, sexual and general offending have too much self-control.

8.1 Synthesis of findings and original contribution

The main aim of this thesis was to examine the hypothesised link between overcontrol and offending, as identifying a substantial proportion of incarcerated people as overcontrolled would challenge the dominant thesis in forensic psychology that low self-control is the single most critical risk factor in explaining criminal behaviour and that high self-control is a protective factor. Beyond confirming the prevalence of maladaptive overcontrol amongst a forensic population, the additional aims of this thesis were to:

- Synthesise and integrate existing knowledge about overcontrol and offending.
- To test the veracity of Megargee's original forensic theory of overcontrol.
- To apply Lynch's novel neurobiosocial theory of overcontrol to a forensic population for the first time and begin to test proof of concept using a sample of males referred to a specialist personality disorder treatment service in a high secure hospital in the UK.
- To distinguish, if any, the unique forensic, clinical and socio-developmental characteristics which may differentiate between over- and undercontrolled individuals with a conviction.

This thesis incorporated a mixed studies systematic review (MSSR), employing both quantitative and narrative techniques to draw together findings from previous research to provide a contemporaneous understanding of the relationship between overcontrol and offending. The three empirical chapters incorporated a quantitative analysis of pre-existing clinical data, and this was used to revisit hypotheses derived from old theories of overcontrol

(Megargee, 1966) and test novel theoretical ideas (Lynch, 2018) about the aetiology and clinical manifestation of maladaptive overcontrol.

The systematic review in Chapter four identified 49 eligible group-based studies examining overcontrol or high self-control and offending. Qualitative and mixed-method research were under-represented, with retrospective cross-sectional or studies comparing over- and undercontrolled samples being the major designs amongst eligible research. Comparison studies were on the whole very low quality and were seriously undermined by inadequate sample assignment methods based on the unreliable Overcontrolled Hostility Scale or violent offending history. Cross-sectional studies typically employed Ward's hierarchical clustering analysis to group participants results on psychometric measures which assessed personality or core clinical constructs linked to overcontrol/high self-control, such as anger.

Cross-sectional studies consistently confirmed the presence of an overcontrolled cluster, and occasionally identified two distinct clusters, which were labelled *controlled repressor* and *inhibited suppressor*. There was an over-representation in eligible studies of incarcerated white adult male samples living in the UK and USA, however overcontrolled samples were also identified amongst juveniles (De Lisi et al. 2010; Worling, 2001), females (Verona & Carbonell, 2000; Widom, 1978), people on probation and community treatment (Du Toit & Duckitt, 1990; Megargee et al. 1967), as well as across cultures (Herzberg & Roth, 2006; Oljača, Baić & Dinić, (2019). Synthesis of the findings from cross-sectional studies confirmed a high prevalence of overcontrol in forensic samples, with around half of forensic in-patients in high secure hospitals identified as overcontrolled and one in three in prison samples. There were some anomalies within the sample, e.g., Redondo et al. (2019) confirmed over 75% of a community sample convicted of intimate partner violence were overcontrol, and in a Serbian male prisoner sample Oljača et al. (2019) identified 60% of the sample as overcontrolled. Redondo et al. (2019) was based on a specialist offending sample, men attending treatment for IPV offences, which may account of the elevated rates of overcontrol in this study. Oljača, et al., (2019) was based on a general adult male prison sample, and may be the elevated scores reflect cross-cultural differences. These hypotheses requires further examination through use of studies assessing cross-cultural variations in the manifestation of overcontrol, and potential

differences across tightly controlled classes of offences and/or offending context (e.g., private versus public).

Other findings and unique contributions from this thesis will be considered in terms of their relevance to forensic theorising about overcontrol and the practical application of the findings to a forensic context.

8.2 Theoretical Implications

8.2.1 Is self-control unidimensional?

Forensic thinking and mental health practices typically adopt a simple unidimensional model of self-control, meaning that consistent verification of the relationship between low self-control and increased risk of offending has been considered proof that high self-control (the purported opposite of low self-control) would be protective against criminal involvement. A positive association between low self-control (maladaptive undercontrol) and elevated risk of engagement in criminal behaviour and psychopathology is well established (Tangney et al., 2004; Pratt & Cullen, 2000; Handley & Cicchetti, 2019; Linehan, 2015). In contrast, the construct of high self-control (overcontrol) has been poorly defined, very little is known about its aetiology, nor the prognosis associated with having maladaptive overcontrol. What is apparent however, self-control is unlikely to be unidimensional and overcontrol, like undercontrol, is probably a multi-faceted concept with its own unique risk factors linked to offending behaviour and mental ill-health (Mears et al., 2013; Lynch, 2018a).

8.2.2 Functional form of relationship between self-control and offending

Traditionally the relationship between self-control and negative life outcomes has been considered linear, i.e., the more self-control a person has then the less likely the person may be to engage in criminal behaviour or experience psychopathology. The precise functional form of the relationship between self-control and offending has not been rigorously evaluated, however there is mounting evidence of a threshold beyond which high self-control no longer serves a protective function (Mears et al. 2013; Lynch, 2018). Whilst further large-scale

forensic studies and longitudinal studies are required to confirm the nature of the relationship between these variables, a simple linear relationship between self-control and offending seems highly improbable. Research conducted within forensic and clinical psychology consistently confirm a relationship between too much self-control and offending (Chapter 4) and/or psychopathology (Bohane et al., 2017). Maladaptive overcontrol is linked, just like undercontrol, to elevated risk of self-harm and suicide (Hempel et al., 2018c); murder (Megargee, 1966; Lane & Spruill, 1980); homicide-suicide (Lester, 1977) and hard to treat psychological conditions (Lynch et al., 2020). Longitudinal studies have also associated overcontrol with social, psychological and legal problems, particularly in adulthood (Denissen et al., 2008; Moffitt et al. 2011). An inverted U (e.g. quadratic) relationship between self-control and offending is therefore assumed in this thesis, with extremes at both ends of the self-control continuum thought to lead to psychological, social, occupational and legal problems which may require intervention from professionals.

8.3 Overcontrol Theory and Offending

This thesis examined two conceptualisations of overcontrol offered by Megargee, (1966) and Lynch (2018a), hoping these could provide a guiding theory for further research examining a potential overcontrol/internalising pathway to crime.

8.3.1 Findings and Critique of Megargee' Conceptualisation.

Megargee's (1966) idea of the "*chronically overcontrolled violent offender*" was innovative at the time and provided a much-needed counter argument to the idea that all offending is driven by low self-control. However, Megargee (1966) failed to provide a sufficiently strong theoretical basis for overcontrol, and subsequent empirical work based on his seminal ideas only examined the accuracy of the clinical descriptions labelled "*Chronically Overcontrolled Violent Offender*" and the "*Undercontrolled Aggressive Violent Offender*".

Findings from the systematic review in Chapter 4 and the empirical study in Chapter 5 confirmed Megargee's ideas that some people with convictions have too much self-control (overcontrol), but the claim that overcontrol is a "*violent offender*" type was unsubstantiated. Detailed analysis of the participants forensic profiles outlined in Chapter 5 re-affirmed prior

findings that both over- and undercontrolled people with convictions were criminally versatile and often engaged in a broad range of offending behaviour. Overcontrolled samples were identified amongst individuals with a sexual conviction (Smith et al., 1987; Worling, 2001), non-violent conviction (Henderson, 1983b; McGurk & McGurk, 1979) and amongst individuals with no known criminal convictions (Asendorpf, & van Aken, 1999; Bohane et al. 2017; McGurk & McGurk, 1979).

Megargee (1966) postulated that overcontrolled individuals would be more likely to commit one-off (low chronicity) but severe (high severity) violent acts e.g. murder. It is concluded that there is little evidence from the study outlined in Chapter 5 and the systematic review (Chapter 4) to support Megargee's low chronicity or high severity hypotheses. The combination of low chronicity and high severity, i.e., a one-off lethal violent offence, may be a potential offence type linked more frequently with individuals identified as overcontrolled (Megargee, 1966; D'Silva & Duggan, 2010), however this could not be statistically tested in this thesis due to a low base rate of this type of crime in the current sample.

Implicitly this *one-off* violent crime hypothesis implies that overcontrolled individuals are less antisocial, and this concurs with Lynch's (2015 p.16) proclamation that overcontrolled individuals are fundamentally prosocial. Consistent with previous research, the findings noted in Chapter 5 confirmed overcontrolled individuals often have criminal histories beyond their index offence, however they were less disposed to acquire convictions for general crime across the lifespan, more likely to adhere to supervision arrangements and had larger gaps between sentencing occasions. Chronicity of interpersonal violence was also lower for overcontrolled individuals across the lifespan, but significant differences between over- and undercontrolled groups in the number of violent convictions was most pronounced before the age of 18 years. Longitudinal studies, such as Denissen et al. (2008) similarly found that overcontrolled individuals have fewer convictions and antisocial incidents as young people, but this levelled out in adulthood. Some overcontrolled individuals are not fundamentally prosocial, or there are clearly many occasions where this prosocial tendency is overridden to engage in antisocial and criminal behaviour. At this time, it is also difficult to conclude that overcontrolled individuals are less violent compared to undercontrolled people with convictions. Much of the prior research is based on official criminal convictions which typically underestimate the true

frequency of offending, and the context in which violence occurs also influences crime reporting. For instance, if overcontrolled people engage in violence within private settings, such as intimate partner violence (IPV), then lower rates of convictions would be expected, especially when compared to those more likely to engage in public displays of aggression and violence. The pre-existing data used in this thesis were not sufficiently detailed to explore the context of over- and undercontrolled violence nor the IPV hypothesis, however Redondo et al. (2019) identified a disproportionate number of overcontrolled people in their community IPV sample. Analysis of conviction type in Chapter 5 also revealed that undercontrolled in-patients were much more likely to have convictions for public displays of aggression, such as criminal damage, public order and assaults on police. These contextual, victim and situational antecedents for violence amongst overcontrolled individuals needs further clarification if we are to adequately answer the question about differences in chronicity of violence, and also what situational variables increase reaction potential within the overcontrolled group.

The idea of specific offending trajectories linked to overcontrol needs further examination, specifically the later onset of offending as well as the internal and external factors which lead to tipping points that move the overcontrolled person away from previous non-violent or non-criminal attitudes. Additionally, those studies which relied on chronicity or severity of violent offending variables to assign participants to over- and undercontrolled comparison groups (see Appendix D) must be viewed with scepticism as the research to date does not support the premise upon which sample assignment was based. Perhaps it is this failure to reliably assign participants to comparison groups that accounts for the inconsistent findings amongst studies examining Megargee's theory, as neither violent offending history nor the OHS measure (see Table 5) are reliable approaches. Essentially one cannot be sure the comparison samples labelled over- and undercontrolled are comparable across many studies, or even if they reflect the actual concept of overcontrol and undercontrol.

Examination of Megargee's hypothesis about differences in rates of antisocial personality disorder and psychopathy were also not confirmed. Cross-sectional studies reviewed in the systematic review revealed that Cluster A and C personality disorder traits were more prevalent amongst overcontrolled individuals who had offended. Cluster B traits were less prevalent in overcontrolled groups, but both groups exhibited similar levels of antisocial personality

functioning (Blackburn, 1996; Blackburn et al., 2008; D'Silva & Duggan, 2010). The empirical study in Chapter 5 also confirmed no difference in the rates of ASPD diagnosis, antisocial features and psychopathic traits in the over- and undercontrolled forensic in-patient samples. A similar level of Hare Psychopathy was also identified between over- and undercontrolled samples, which aligned with the findings from a previous study in another high secure hospital (Blackburn et al., 2008). Contrary to Megargee's prediction, ASPD and psychopathy diagnosis does not discriminate between over- and undercontrolled in-patients with offending histories. As noted previously in Chapter 5 (section 5.4), sampling bias, measurement error and misdiagnosis may account for these unexpected findings. Samples drawn from prisons, consistent use of a reliable psychopathy measure and a full examination of differential diagnosis between maladaptive overcontrol and psychopathy/ASPD is recommended to extend our understanding.

Megargee's original descriptor of a "*chronically overcontrolled violent offender*" implicated excessive anger regulation as a central mechanism in explaining violent offending, but this core coping deficit was not confirmed in the current study (Chapter 6) or previous research (D'Silva & Duggan, 2001; Low & Day, 2015; Redondo et al., 2019). Whilst anger expression and inhibition scores were generally lower for overcontrolled in-patients when compared to undercontrolled in-patients, their scores were within the normal range when compared with the STAXI general-public norms. Other clinical characteristics proposed by Megargee (1966) as indicative of overcontrol, such as better impulse control, more cognitive and interpersonal rigidity and high resentment have consistently been confirmed and will be explored in more detail when critically evaluating Lynch's theory. Some extensions to Megargee's ideas offered by Day and colleagues (2005, 2009), such as the role of rumination, will also be considered later in this chapter.

Findings from the systematic review and empirical studies in this thesis provide convincing evidence that the essence of Megargee's idea was correct, there is a substantial proportion of people within the criminal justice system who have too much self-control (overcontrol). Most other components of Megargee's description of overcontrol have not been verified, and the main hypothesis that overcontrol is a *violent offender type* underpinned by excessive anger regulation is unsupported. Megargee's depiction of overcontrol is too narrow and incomplete,

and the failure to provide a guiding theory has hindered systematic study of the phenomena in a forensic context. McGurk (1981) previously remarked overcontrol is more likely a personality characteristic (high trait self control) found across people with or without criminal convictions. McGurk's idea seems to have got lost in the annals of time, and the consistent finding of overcontrol, undercontrol and resilient personality prototypes in large scale longitudinal research also failed to be absorbed into the forensic psychology psyche. Failure to incorporate these findings meant that many subsequent studies continued to rely on Megargee's now debunked hypothesis that overcontrol is a violence-specific phenomenon underpinned by excessive anger regulation, as opposed to McGurk's personality trait hypothesis. Violent offending history was subsequently used as a basis for over- and undercontrolled sample assignment (Appendix D) and confirmation of overcontrol in non-violent populations or inconsistent findings perhaps due to inadequate sample assignment were wrongly seen as verification that the phenomena of overcontrol did not exist in forensic populations rather than Megargee's clinical description was inaccurate.

Perhaps it is time to move on from Megargee's ideas and apply more contemporary theorising on overcontrol drawn from clinical psychology and the nosology of clinical disorders. Dimensional models as opposed to categorical types appear to capture the construct of self-control more accurately in human beings, regardless of conviction status. The relationship between the well-recognised dimensions of internalising (overcontrol) and externalising (undercontrol) spectra associated with psychopathology and personality, could also be explored to identifying specific personality-based pathways to offending. This parallels changes in clinical psychology practice, where research is moving away from categorical to dimensional models of psychopathology and personality, with some common mental health conditions being reconceptualised and treated as disorders of overcontrol, such as refractory depression and anorexia nervosa (Lynch et al. 2020). Greater application in forensic psychology of dimensional approaches to self-control and other psychological constructs is recommended.

8.3.2 *Findings and Critique Lynch's theory*

This thesis re-ignites the idea that some people who offend have too much self-control and the latest theorising on overcontrol was applied to a forensic population for the first time.

Contemporary theorising on overcontrol, (Lynch, 2018a), takes McGurk's idea of overcontrol as a personality trait one step further, arguing overcontrol is a multi-faceted construct. Lynch's (2018a) neurobiosocial explanation of overcontrol outlines the genotypic predisposition (nature component) needed for the emergence of overcontrol, along with the socio-environmental contingencies (nurture component) that support the formation of maladaptive overcontrol and coping responses that perpetuate and strengthen self-control tendencies.

The systematical review in Chapter 4 draws together the findings from existing research and evaluates the evidence in relation to the *nature*, *nurture*, and *coping* components of Lynch's overcontrol theory. The neurobiological aspect of overcontrol, Lynch's *nature component*, has yet to be studied in a forensic population. A very small body of work has examined the *nurture component*, although heterogeneity in study design and measurement means synthesis of the findings is difficult. The most studied component of Lynch's theory are self-control tendencies and coping, accounting for 78% (n = 38) of the 49 eligible studies in the systematic review. As detailed below, there is consistent support for three of the five coping themes outlined in Lynch (2018a), tentative support for the other two, and the four markers of maladaptive overcontrol appear to translate to forensic populations. Findings from the systematic review also prompted the two empirical chapters which undertook some preliminary proof of concept testing using pre-existing clinical data. Chapter 6 examined the nature and coping components of Lynch's model using subscales from pre-existing routinely collected clinical data administered upon admission to a high secure forensic psychiatric hospital. Psychological measures were used that assessed personality functioning (PAI), anger (STAXI-2), and impulsivity (UPPS), and structured nursing observations evaluating interpersonal functioning (CIRCLES). Chapter 7 examined the nurture component of Lynch's model, relying on data drawn from professional reports which document the developmental history of each participant. Key findings from the mixed studies systematic review and empirical studies are outlined below.

8.3.2a Biotemperamental Biases (Nature)

The predicted bio-temperamental biases of high threat sensitivity and low reward sensitivity were present for the overcontrolled group as measured by proxy concepts of hypervigilance and sensation seeking. High threat did not differentiate between over- and undercontrolled participants as expected. The highly traumatised nature of this sample may be one reason, e.g.,

trauma elevates threat sensitivity and hypervigilant coping (Dalgleish et al. 2001) which may artificially increase the undercontrolled group scores whilst simply strengthening the already elevated threat in the overcontrolled group. Consequently, both groups have high threat but the aetiology is different. Low scores in sensation seeking (proxy for reward sensitivity) for both groups were unexpected. Perhaps the high secure setting and an inadequacy of the sensation seeking proxy measure unduly impacted this finding. The biotemperamental bias of high inhibition was evidenced both in findings from the systematic review and Chapter 6. Overcontrolled individuals had a superior capacity to inhibit impulses and negative affect compared to undercontrolled participants and were also significantly better at controlling anger experiences. The final biotemperamental bias of high attention to detail stipulated in Lynch's (2018a) theory of overcontrol was not tested in this thesis, as no suitable proxy measure could be identified amongst the pre-existing data.

Overall, there is some evidence to support the biotemperamental biases considered indicative of overcontrol in Lynch's theory, but more research is needed using direct measurement of the constructs as opposed to proxy measures. To be confident about the applicability of the nature components of Lynch's model, psychophysiological measurement is recommended to critically inspect these posited sensory-receptor level biases. Psychophysiological measurement may also reduce noise in self report and observational measures probably caused by forensic settings, i.e., a tightly controlled secure unit where threat of violence is high, enjoyment and stimulation are low and high levels of conformity is expected to secure progression. Differences in biomarkers for reward sensitivity, such as frontal lobe asymmetry (Nelson et al., 2013), Neutral, Predictable and Unpredictable (NPU) startle task as a biomarker for threat (Schmitz & Grillon, 2012), and vagal mediated heart rate variability (Williams et al., 2015), may be potential psychophysiological and neurobiological assessment methods.

8.3.2b Socio-Developmental Experiences (Nurture)

Lynch's nurture components include "historical (childhood trauma, past learning) or contemporary (present living conditions, new learning) influences, which are posited to transact in an iterative and bidirectional way; that is, nature influences nurture, and vice versa" (Lynch, 2018a, p. 54). Due to the nature of the information gleaned from pre-existing routinely collected data and official records, only the historic aspect of Lynch's nurture component

could be examined, specifically childhood maltreatment, school adjustment, peer relationships and childhood stability.

Socio-developmental experiences of undercontrolled in-patients in Chapter 7 reflected prior findings pertinent to externalising (undercontrolled) pathways to offending (Chassin et al., 2016; Handley et al., 2017; Mezquita et al., 2014; Oshri et al., 2011), and overcontrolled in-patients experiences growing up partially align with Lynch's theory. The home environment for both over- and undercontrolled participants growing up was typically unstable and chronically abusive. Physical, sexual and/or emotional abuse were common, and similar to Blackburn et al.'s (2008) findings, there were no differences between over- and undercontrolled forensic in-patients abuse experiences. The study in Chapter 7 extended current understandings, confirming that childhood maltreatment was typically perpetrated by multiple care-givers who should have cared for and protected these children. Overcontrolled participants were however much less likely to be physically neglected by parent/care-giver(s) or parent substitutes than undercontrolled participants, and this parental neglect alongside the chronic abuse, may partly explain the higher rates of out of home placements experienced by undercontrolled participants. Higher levels of running away from home, school maladjustment, disruptive behaviour, and expulsion/suspension from school amongst undercontrolled participants, particularly in adolescence, may reflect differences in self control tendencies. Undercontrolled individuals acted out in response to abuse which would alert authorities to problems at home and the need for state intervention, whereas overcontrolled individuals seemed to stay in similarly abusive home/care environments, behaved at school and quietly endured the abuse hence no one stepped in to protect them. This hypothesis would need further exploration, but such a response would be in keeping with Lynch's idea that overcontrolled individuals are often more socialised, conforming, and as Chambers et al. (2011) pointed out tolerate toxic relationships for years without acting out. Lynch's (2018a) theory would also suggest that praise for being well-behaved and enduring without speaking out may inadvertently strengthen biotemperamental tendencies linked to inhibition and maladaptive overcontrolled coping. According to Lynch's theory, overcontrolled individuals may take pride and draw self-esteem for enduring so much without going off the rails or reacting, but inside there is often intense feelings (low distress on the outside, high on the inside). The apparent early gains in adjustment noted amongst overcontrolled participants whilst growing up do not

appear to carry forth into adulthood (Megargee & Carbonell, 1993; Denissen et al. 2008), perhaps this high internal distress reaches a threshold where it can no longer be endured.

Availability of a nurturing and consistent parental figure is critical for healthy child development, along with a safe and stable place to live. Lynch's theory would suggest, at least on the surface, that overcontrolled participants would experience greater stability growing up, greater familial cohesion, and the presence of a prosocial parental figure (Chambers et al., 2009, 2011; Megargee & Carbonell, 1993; Rawling, 1973). The findings from Chapter 7 reveal no significant differences between over- and undercontrolled groups in experiences of parental divorce, infidelity, criminality, educational maltreatment and nature of child-parent relationships. Both groups also moved around a lot growing up, but overcontrolled individuals often moved with a family member and had access to a consistent care-giver. In comparison, undercontrolled participants experienced repeated parental rejections and absences, and were much more likely to experience multiple changes in care-givers before the age of 12 years, and have at least one parent who had a diagnosable mental disorder. Even though overcontrolled in-patients had access to a consistent attachment figure growing up who seemingly tended to their basic physical needs, it is unlikely this care-giver relationship was developmentally nurturing, given the reported patterns of abuse. Whether parent(s) of overcontrolled in-patients promoted prosocial values as suggested by Lynch is also unknown, but at least one parent was more likely to take appropriate supervisory responsibility for their children and significantly less likely than the parent/care-giver(s) of undercontrolled in-patients to proactively encourage their children to engage in antisocial and criminal behaviour (i.e., moral, supervisory and legal maltreatment). Undercontrolled participants were also much more likely than overcontrolled in-patients to develop antisocial peer networks outside the home, starting in adolescence and continuing into adulthood.

Experiences of childhood maltreatment and parenting experiences of overcontrolled in-patients with convictions appear to parallel those of undercontrolled in-patients, therefore the actual occurrence of abuse offers little explanatory value in understanding why maladaptive overcontrol occurs. The socio-environmental contingencies that come with maltreatment, and how these are cognitively processed alongside genotypic biotemperamental systems, is probably more important in understanding how maladaptive overcontrol and coping responses

are shaped. Less obvious parenting practices may also contribute to the progression of overcontrol and produce familial risk on overcontrolled pathways to psychopathology (Lynch, 2018a) and offending (Megargee, 1966; Megargee & Carbonell, 1993). According to Lynch, (2018a), parenting practices that support the emergence and strengthening of habitual overcontrol include parental invalidation (including overprotection), parental misattunement, and parental modelling of overcontrolled coping. Direct and indirect parental messaging that persistently places a high value on self-control, social conformity, achievement, and correctness over social connectedness will also strength overcontrol tendencies (Lynch, 2018a). Parenting practices could not be directly tested with the pre-existing data used in this thesis, but how they interact with posited biotemperamental biases associated with overcontrol and how they are psychological received, processed and then behaviourally expressed can be speculated upon. For instance, undercontrolled in-patient's response to childhood abuse and neglect appears to involve more acting out in public arenas which probably draws attention from outside authorities. Parental undercontrol, particularly if so severe that it resulted in a psychiatric diagnosis, may also model acting out behaviour and the capacity to draw attention to the familial context through dramatic and erratic acts. Hypervigilance in reponse to abuse would be an adaptive response regardless of temperamental biases, however it only strengthens the innate biotemperamental tendency (high threat) associated with overcontrol. Silencing, a common practice used by abusers, as well as overcontrolled parents modelling and messaging about the importance of keeping up appearances, keeping family secrets or even outright denial, would strengthen the overcontrolled child's biotemperamental inhibition biases and coping responses of overtolerance of distress. These are speculative ideas based on Lynch's (2018a) theory, and further work is needed to disentangle the complex relationship between maltreatment and maladaptive overcontrol. Specifically how parental and societal contingencies shape the emergence of maladaptive overcontrolled coping amongst people with convictions.

8.3.2c Coping:

Findings from the synthesis of the existing forensic research in Chapter 4 and the empirical study in Chapter 6, provides some support for the four markers of maladaptive overcontrol and the associated coping themes outlined in Lynch (2018a).

- Evidence of high hypervigilance, suspiciousness and behavioural avoidance, indicators of *low receptivity and openness*, have consistently been confirmed amongst individuals with convictions as identified in the systematic review of the extant literature and findings from Chapter 6 provide further support. Other indicators of low receptivity and openness, like responses to feedback and sensitivity to negative evaluation, have never been examined in overcontrolled populations with convictions.
- *Low flexible control* was consistently identified in the studies reviewed in Chapter 4, specifically cognitive and interpersonal rigidity, dutifulness, high moral certitude and excessive cognitive rehearsal which may act like offence planning and can look like premeditation. Hyper-perfectionism, compulsive fixing and approach coping have never been specifically evaluated with people identified as overcontrolled who have convictions. The findings in Chapter 6 confirmed a high need for structure and order amongst overcontrolled individuals but this need was not significantly different from undercontrolled in-patients detained in a forensic psychiatric hospital.
- *Pervasive inhibited emotional expression and low emotional awareness*, as stated previously, consistently discriminated between over- and undercontrolled groups, with overcontrolled in-patients more likely to inhibit emotions and distress. Nuances in emotional processing have not been specifically examined in this thesis as there were no suitable proxy measures amongst the pre-existing data, in particular low awareness of bodily sensations and social signalling deficits. A lack of prosocial social signalling is central to Lynch's theory and specialist RO-DBT treatment, specifically context-inappropriate inhibition of emotional expression or insincere or incongruent expressions of emotion. Whilst social signalling was not directly examined in this thesis, nursing observation indicated a lack of prosocial signalling may be present, noting overcontrolled in-patients were more withdrawn, less warm, spontaneous, and fun-loving than undercontrolled counterparts.
- *Low social connectedness and intimacy with others*, again appears an important discriminating variable between forensic cases identified as over- or undercontrolled, with interpersonal aloofness and distancing consistently identified in the prior research and the study reported in Chapter 6, as well as feelings of being different from other people, an outsider/loner. Use of frequent social comparisons, high envy and bitterness

have yet to be systematically examined with forensic populations, and higher empathy rather than reduced empathy as predicted by Lynch (2018a) was found by Henderson, (1982; 1983b).

Cross-sectional studies reviewed in Chapter 4 also confirmed the presence of two overcontrolled clusters. Both clusters were characterised by high restraint, but they had quite different profiles associated with affective distress and interpersonal functioning. The term, *controlled repressor*, was coined to describe one group who reported high restraint but limited psychopathology and personality impairment on a range of personality measures, as well as low anxiety, low neuroticism, low affective tension, and low–moderate depression. The other overcontrolled group termed, *inhibited suppressor*, again displayed high restraint but reported high levels of emotional tension and distress which was kept inside (suppressed). Interpersonally, the *controlled-repressor* subtype was more socially outgoing and at least able to maintain a social façade of apparent well-being, whereas the inhibited group were characterised by extreme shyness, social anxiety, and had problems managing relationships. Whether these are distinct subtypes of overcontrol is unclear, and the association between these two forensic subtypes and Lynch’s subtypes identified amongst clinical population needs further scrutiny. Alternatively, they may reflect Lynch’s (2014) notion of an overcontrolled continuum which goes from flexible control to maladaptive overcontrol - diagnosable overcontrolled conditions, such as Autism, Cluster A and C personality disorders, anorexia nervosa and refractory depression. This latter hypothesis of an overcontrolled continuum seems most likely, with confirmation of the *inhibited-suppressor* group more likely in psychiatrically detained populations, such as high secure hospitals (Blackburn et al., 2008).

The findings in this thesis tentatively support Lynch’s (2018a) hypothesis about the aetiology and clinical manifestations of maladaptive overcontrol, and confirm it is mostly likely a disorder of emotional loneliness rather than a disorder of excessive anger regulation as previously thought (Megargee, 1966). It is concluded that Lynch’s theoretical model provides a good basis to retest the concept of overcontrol in forensic populations and develop our understanding of an overcontrolled pathway to offending.

8.4 Implications for Forensic Practice

Evidently, a substantial proportion of the forensic population may be overcontrolled, with higher prevalence rates in some offence categories and amongst people in forensic psychiatric hospitals. Failure to acknowledge the presence of overcontrol in forensic practice means between 30-50% of incarcerated individuals are likely to be misdiagnosed, offered inappropriate or damaging treatment and their risk of re-offending inaccurately assessed. These consequences are clearly unacceptable to the person who may be detained beyond what is reasonable, the professionals who may be causing unintentional harm, and to wider society who may be put at risk unnecessarily and footing the bill for forensic interventions which theoretically do not address core criminogenic needs for overcontrolled individuals. Being able to accurately identify and treat maladaptive overcontrol in forensic populations is clearly an urgent ethical, practical, and economic imperative.

It is contended in this thesis that adoption of dimensional models of psychopathology and personality offers an alternative way of conceptualising criminal behaviour and has the potential to transform forensic mental health research and treatment by offering transdiagnostic approaches (Ruggero et al. 2019; Conway et al., 2019). Acceptance of this hypothesis means rejection of the notion that we require treatments for specific psychological disorders or specific types of offending behaviour, rather forensic interventions should be developed with a specific goal of treating transdiagnostic constructs. Clark et al., (2019 p.142) notes a transdiagnostic approach relies heavily on the “identification of robust, replicable, personality-relevant dimensions and dimensional models of psychopathology”, such as internalisation and maladaptive overcontrol. This rethinking of psychiatry and psychology from categorical disease models to dimensional continuous structures is still in the early stages of development, and various hierarchical models, and groups of constructs, spectra and domains have been proffered (Insel et al., 2010; Kotov et al. 2017; Widiger & McCabe, 2020). To date, this suggested paradigm shift in psychiatric and psychological practices has not gained much attention in forensic practice, remaining a potentially fruitful area for further in-depth theoretical consideration and/or practical application. Much like the well-established externalising (undercontrolled) pathway to crime, this thesis provides a basis for developing a model of an internalising (overcontrol) pathway to crime. Whilst Lynch’s contemporary

theorising on overcontrol does not completely transfer to a forensic context, it nevertheless offers a useful guiding theory upon which to systematically study why some people with too much self-control offend.

8.4.1 Assessment and Treatment

The findings presented in this thesis have implications for assessing forensic populations with or without mental health conditions. Forensic risk assessment tools and rehabilitative interventions inadvertently reinforce unidimensional linear models of self-control. For instance, most measures assume the primary cause of recidivism stems from deficits (not excesses) in self-control and as a result tend to focus primarily on identifying risks associated with undercontrolled coping (Douglas, Hart, Webster & Belfrage, 2013; Wong & Gordon, 2006). They also implicate antisocial peer relationships which do not appear to be a major risk factor for overcontrol individuals, indeed it is the absence of close friends and emotional loneliness which is at the core of the condition. Instability and impulsivity are also core risk factors for undercontrolled coping, where for this group excessive inhibition and rigidity underpin maladaptive overcontrol. Reconceptualisation of risk assessment through a lens of overcontrol is recommended, along with further research assessing recidivism rates amongst those identified as overcontrolled.

Misdiagnosis or misclassification of maladaptive overcontrol has already been identified in mainstream non-forensic treatment services. For instance, Hempel et al. (2018b) found that treatment services often misclassified referrals, with individuals who had overcontrol issues being labelled with undercontrolled conditions, specifically borderline personality disorder. Systematically dissecting the relationship between maladaptive overcontrol, Hare Psychopathy, Antisocial Personality Disorder and other Cluster B personality disorders would advance the field. Practically this process would help referral management and assessment, and greatly help the process of differential diagnosis. It may also help avoid negative labelling, like psychopathic, which could have a profound impact on self-esteem and how the person is treated by others (Berryessa & Wohlstetter, 2019; Lowe & Willis, 2020)

The findings in Chapter 4 and 5 indicate low levels of crime prior to 18 years amongst individuals identified as overcontrolled, and less disruptive behaviour at school. General-

population studies indicate that overcontrol is identifiable from around age 4–5 years (Gilbert et al., 2019), with levels of aggression going from below average in childhood to average by age 23 (Denissen et al., 2008). Early intervention may be promising areas of practice to disrupt this trajectory, and Gilbert et al. (2019) are engaged in research aimed at gaining a better understanding of the cognitive, emotional, parenting, and neural correlates of overcontrol in young children. Continuing to understand the correlates associated with an internalising (overcontrolled) pathway to offending is critical. Interventions that may prevent the development of restricted overcontrolled coping would also reduce the need for tertiary interventions if people can be engaged early and diverted away from mental health and criminal justice systems.

The author contends that a major reason so many tertiary treatments for offending behaviour show mixed results (Tew, Harkins & Dixon, 2013; Olver, Lewis & Wong, 2013) is because they use categorical approaches based on diagnosis or offence type underpinned by an assumption that the relationship between self control and criminal behaviour is linear—that is, more self control is always better. Forensic treatments based on these traditional categorical based paradigms and predicated on undercontrolled coping have proven relatively ineffective and fails to provide treatment for criminally versatile or overcontrolled individuals. Indeed, Low and Day (2015) and Redondo et al. (2019) confirmed that overcontrolled individuals gained little from traditional offence related treatment programmes predicated on assumptions that normalising low self-control is a critical factor in reducing risk of re-offending for all individuals with convictions. Traditional offending behaviour interventions still ubiquitously teach skills aimed at increasing inhibitory control (Lee & Digiuseppe, 2018), despite Megargee (1966) and latterly Davey, Day, and Howells (2005) raising concerns about the potential iatrogenic effects of applying these one-sizes-fits all approaches. The findings in this thesis confirm a substantial population of overcontrolled individuals are not receiving the treatment they need: rather than learning how to inhibit their emotions, they need to learn how to relax inhibitory control and increase emotional expressiveness, receptivity, and flexibility.

A major underlying premise of Lynch's model of overcontrol is that *personality matters* when intervening with treatment-resistant and chronic conditions, signalling that broad-based personality dimensions and overlearned perceptual and regulatory biases are interfering with

psychological change. This matters when it comes to treatment—specifically, treatments targeting problems of undercontrol should emphasise interventions that enhance inhibitory control and reduce mood-dependent behaviour, whereas treatments targeting problems of overcontrol require interventions designed to relax inhibitory control and increase emotional expressiveness, receptivity, and flexibility. A unique mechanism in Lynch’s theory and subsequent treatment based on this theory, RO-DBT, is the focus on social signalling. Lynch et al. (2015a) outlines in detail how “social signalling matters”, in essence the overcontrolled person’s biotemperamental system means prosocial social signalling at a sensory receptor level may be blunted. If this bias is strengthened during childhood and later life, the emergence of overcontrolled coping and the development of maladaptive overcontrol becomes more likely. Sensory receptor level social signalling based on neuroceptive tendencies and driven by the autonomic nervous system, means unintentionally the overcontrolled person may bring regulatory biases and response tendencies that impair their prosocial signalling capacity and function to keep them as per perpetual outsiders and loners. This emotional loneliness and social isolation is seen as a primary risk factor for overcontrolled individuals, underpinned by deficits in social signalling and the four markers of maladaptive overcontrolled discussed above.

Classification of individuals with criminal convictions based on personality dimensions may improve treatment outcomes and services (Mews et al., 2017; Hare-Duke et al, 2018). It may also be more economical, as problematic underlying personality processes and dynamic risk factors could be addressed by a single treatment, avoiding admission to costly specialist treatments or the need for multiple treatments. This approach aligns with the latest clinical psychology, psychiatry, and academic thinking, where the focus is on core latent transdiagnostic constructs (Kotov et al., 2017). Referring individuals with convictions based on personality-based criteria has been piloted in high-secure forensic services (Hamilton et al., 2018), with undercontrolled individuals with offending histories referred to Dialectical Behaviour Therapy (DBT, Linehan, 2015) and overcontrolled individuals referred to Radically Open-Dialectical Behaviour Therapy (RO-DBT). The initial pilot of personality-based treatment planning for men with convictions is ongoing. Evaluation work from early adopters of RO-DBT reveals promising results, with overcontrolled patients feeling more understood and felt the RO-DBT skills were relevant to their needs, and many have completed their first

treatment programme despite being in high-security treatment services for over 15 years (Hamilton et al., 2018). Lynch's (2018a) new theory of overcontrol may also help explain other forms of antisocial behaviour, in particular offending which appears like an out of character explosive outburst, takes a great deal of planning or seems associated with core overcontrolled issues, such as moral outrage, high inhibitory control, bitterness and social isolation. Additionally, Lynch sees maladaptive overcontrol as a disorder of emotional loneliness with social signalling and restricted coping keeping people "out of the tribe" and creating a sense that they have no one in their life who cares. Social exclusion, whether self-generated through maladaptive overcontrolled coping or due to social injustice, has been elucidated as a central risk factor for a broad range of offensive behaviour, such as religious-political acts of terrorism (Ranstorp 2016), mass killing (Knoll & Meloy 2014), rape (Worling 2001), acts of homicide-suicide (Lester 1977), and radicalisation (Ranstorp, 2016). Understanding, preventing and treating maladaptive overcontrol may have widespread social, clinical as well as forensic implications.

8.5 Critical Appraisal of Thesis

Whilst this thesis offers many new theoretical and practical ideas, and innovative ways of conceptualising, assessing, and treating a substantial proportion of individuals coming into contact with the criminal justice system, like all research it has some significant methodological weaknesses.

8.5.1 *Constraints of the Sample*

The sample was drawn from a specialist personality disordered treatment service in a high secure forensic psychiatric hospital in the UK. This provided a detailed analysis of this group of people accessing some of the most expensive forensic psychiatric services in the UK, but it is a highly specialist sample which is unlikely to be representative of general prison and community forensic populations. As discussed previously, this sampling bias may explain some of the unexpected findings in this thesis. Specifically, detainment in a high-security hospital is sanctioned under the Mental Health Act (1983, amended 2007) and a person must have a diagnosable mental disorder and be considered a grave and immediate danger to the public if released. Consequently, all the in-patients in this sample were more likely to have

serious offending histories and be diagnosed with significant personality psychopathology. It is therefore concluded that Megargee's hypothesis about differences in antisocial personality functioning between over- and undercontrolled individuals requires further testing in more generalised forensic settings to avoid this sampling bias distorting results.

The sample size was also relatively small (n=106), and the samples across the studies varied depending on the availability of the specific data needed for the study. Whilst the demographic profile of the sample in this thesis reflected the wider Offender Personality Disorder Pathway population profile, it is still limited to males, who are white and British. Future research into overcontrol and offending should try to access more heterogeneous populations comprising people of different sexes, races, ethnicities and nationalities.

There may also be a subtle response bias, specifically in the studies relying on self-report measures and interview data, as participants had to volunteer to participate. Volunteer samples can result in differences between those who volunteer to engage and those who do not, creating a response bias. Missing value analysis was conducted to evaluate whether there was a difference between the missing values group and the actual sample, and whilst they were fundamentally similar the latter group appeared less motivated to engage in treatment and were often discharged from hospital more quickly.

As stated previously the tightly controlled hospital context is likely to have a negative effect on some self-report measures, concomitantly the same environment permits close observation of residents and close therapeutic bonds which would improve the reliability of patient observation scales, like the CIRCLES.

8.5.2 Nature of pre-existing data & retrospective design

Reliance on a retrospective design and pre-existing clinical data has some methodological weaknesses. Retrospective designs are particularly useful when studying novel ideas, specifically testing their feasibility and proof of concept (Hess, 2004), which fits the purpose of this thesis. However, the evidence generated using this design is generally not considered to be sufficient to confirm the presence of a concept, as at best there is only capacity to determine an association between variables.

Use of pre-existing clinical data also has several inherent problems. Firstly, pre-existing clinical data have typically been collected by somebody other than the researcher for reasons other than research (Hess, 2004; Jansen et al., 2005). The overlapping professional roles of the author as clinician and researcher, meant the author had some involvement in data collection and supervision of others collecting some of the thesis data – however these data were still originally collected for clinical purposes. Each of the data sources also had some advantages and weaknesses, which have already been outlined in some detail in Chapter 2 (methodology) and discussed in the limitation sections of each chapter.

There are ways to ameliorate these biases associated with retrospective designs and use of pre-existing data, but they are never truly eliminated which is also the case for many other types of research design. Whilst there are some problems with retrospective designs and use of pre-existing clinical data, there were sound ethical and practical reasons for this approach. Specifically, use of pre-existing data permitted further investigation of this promising area, whilst also minimising disruption to individuals already highly distressed to be in a psychiatric hospital, and partaking in an intensive residential treatment service. Whilst the studies in this thesis provide a good starting point, more robust designs and primary data collection is now indicated and recommended to progress this field of study.

8.5.3 *Difficulties measuring overcontrol*

Reliance on pre-existing data meant that proxy measures had to be used to evaluate the relevance of some aspects of Lynch's theory. Whilst this provides a starting point for testing proof of concept, and permitted exploration of this novel idea without causing any disruption to patient care, at best they offer preliminary evidence to support the idea that an antecedent for some offending may be too much rather than too little self-control. Future studies should aim for primary data collection and use reliable and valid measures that directly assess the theory related phenomena. This measurement problem was especially apparent when assessing sensory-receptor level biases linked to the biotemperamental biases, and psychophysiological measures are recommended to reduce noise in the data. Similarly for socio-developmental experiences, the pre-existing data had to be transformed post hoc to address some of the hypothesis and many critical aspects of Lynch's nurture component could not be evaluated with the data available, specifically impact of parenting styles and parental behaviour.

Developments in measures have also occurred since the collection of the original data, and it is recommended that the updated UPPS-P (Cyders et al., 2007) is used in primary data collection, as it now assesses inhibition of approach behaviours stimulated by positive affect as well as avoidance behaviours stimulated by negative affect. Employing the measures recommended in Lynch (2018, p. 77) would also support cross-cultural comparisons if assessments became widely used, such as the *Personal Need for Structure* (Thompson et al., 1992; Neuberg & Newsom, 1993) and the *Acceptance and Action Questionnaire-II* (Bond et al., 2011).

Sample assignment to over- or undercontrolled groups has been particularly problematic both in prior research and studies in this thesis, as there is currently no validated measure of maladaptive overcontrol or measure differentiating over- and undercontrol. Historically, comparison studies used proxy measures of over- and undercontrol based on Megargee's conceptualisation, such as levels of overcontrolled hostility scale (OHS), expert-rater opinions, and severity and chronicity of violent offending. The OHS is not considered a reliable, valid and culturally neutral measure (Hutton et al., 1992), and cannot be used to distinguish an undercontrolled comparison group (Walter & Green, 1983). Similarly, assigning over- and undercontrolled groups using violent offences is also not supported, as the existing research has confirmed unequivocally that overcontrol is not exclusively a violent offending phenomenon. Neither the severity of the violent offence ("extreme assault") nor the chronicity of violent offences ("one-off" or "single episode") are reliable markers for overcontrol. Overcontrol appears to traverse the spectrum of offending behaviour, and violent offending history is not recommended as an appropriate method to assign over- and undercontrol subgroups.

The empirical studies in this thesis relied on a two-stage process involving personality-based criterion and expert panel ratings. This is a novel sample assignment method which was based on the latest theorising about overcontrol (Lynch, 2018a), however it was time consuming and speculative. High comorbidity rates meant case classification based on diagnosis alone was not always possible, and misdiagnosis of Borderline Personality Disorder in overcontrolled clinical populations is common (Hempel et al., 2018b). To reduce this possibility of classification bias, diagnoses were supplemented with expert panel ratings similar to Du Toit and Duckitt's (1990)

design. Overall, the overcontrolled patients seemed much more difficult to accurately identify using personality disorder diagnostic profiling than undercontrolled in-patients, and sample assignment for this group relied heavily on expert panel ratings.

Identification of overcontrolled individuals is clearly difficult, even for a specialist personality disorder service with individuals trained in the latest thinking about overcontrolled conditions. Sample identification would be significantly enhanced with new specialist assessment tools that are validated for use with forensic populations. Additional staff training sharing the latest theoretical and clinical understandings of overcontrolled conditions may help early and accurate identification of overcontrolled service users.

8.6 Future Implications

This preliminary study examining a novel theory of overcontrol with personality disordered in-patients makes an important contribution to our understanding of offending behaviour, in particular very serious violent and sexual offending which has often resulted in life threatening behaviour, death or multiple deaths. This study supports a growing body of evidence that indicates not all people with convictions have too little self-control, rather, there seems to be a substantial population of overcontrolled individuals with convictions accessing the most expensive forensic in-patient services.

Ward and colleagues (Ward & Brown, 2004, p. 245; Ward & Maruna, 2007, p. 23) argued that “one size does not fit all” when treating individuals with convictions, and many have advocated that overcontrolled individuals require different treatment from those identified as undercontrolled (Davey et al, 2005; Day et al, 2008; Hamilton et al. 2018; Low & Day, 2015; Megargee 1966). Lynch’s theoretical advancement in explaining overcontrolled conditions adds further weight to the argument that core genotypic (biological) and phenotypic (behavioural expression) differences between over- and undercontrolled individuals has important implications for forensic practice. First, treatments will need to account for individual differences in biotemperament that may bias perception and impair learning and flexible responding. Second, treatment targeting overcontrolled problems require interventions designed to relax inhibitory control and increase emotional expressiveness, receptivity, and

flexibility. With the advent of the first specialist treatment for overcontrolled conditions, that is Radically Open Dialectical Behaviour Therapy (RO-DBT; Lynch, 2018), and initial positive outcomes with overcontrolled forensic in-patients conducted (Hamilton et al. 2018; in press), maybe it is time to try something different in treating this marginalised and ignored segment of people in forensic institutions.

8.7 Concluding Remarks

Applying a transdiagnostic approach to forensic practice and treatment intervention could help generate more valid practical decisions when identifying treatment needs and referring for psychological interventions to address personality difficulties and associated dynamic risk factors (Hamilton et al., 2018). Personality-based treatment may raise the internal validity and reduce variance in evaluation studies, and it could possibly lead to more consistent and clear results from evaluations of offending behaviour treatment programmes. A lack of adequate assessment procedures to screen and specifically assess for maladaptive overcontrol is however hampering progress, and this area needs urgent attention. The overfocus on undercontrol in teaching curricula within mental health and forensic training programmes is something that also requires consideration, with greater attention required for those less eye-catching but often chronically debilitating conditions linked with having too much self-control (overcontrol) as opposed to too little self-control (undercontrol).

Preliminary applications of RO-DBT to forensic cases are a new development, and it appears this specialist treatment is helping previously hard to reach in-patients feel safe and connected to people. In turn, a positive shift in patients' views about connectedness may encourage greater willingness to build and maintain therapeutic relationships, especially between patients and their clinical teams. The positive experience of these cohorts has also prompted the National High Secure Service for Women at Rampton Hospital to deliver RO-DBT (Spring 2020) and the National High Secure Service for Learning Disability has commenced an adapted model of RO-DBT (2019). Since this pioneering work at Rampton High Secure Hospital, other forensic RO-DBT or RO-DBT informed forensic services have been popping up in prison (HMP Whatton, ACORN service) and lower security forensic hospital services (Stockton Hall, Roseberry Park). All these forensic projects have drawn inspiration from the work in this thesis.

Chapter 9: APPENDICES

9.1 Appendix A: Systematic Review Protocol

Review Title:

A systematic review of over-controlled coping and personality amongst legally sanctioned individuals.

Reviewers

Primary reviewer name: Laura Hamilton (LH), Registered Forensic Psychologist, Nottingham Trent University and Rampton Hospital, Nottinghamshire Healthcare Foundation Trust. Laura.hamilton@ntu.ac.uk

Secondary reviewer name: Anthony McNally (AM), Research Assistant, Nottingham Trent University.

Third reviewer name: Professor Belinda Winder (BW), Nottingham Trent University.

Background

The idea violent offenders could be categorised into under- and over-controlled types was first proffered by Megargee and Mendelsohn (1962), and developed in subsequent studies which confirmed the two types of violent offenders (Megargee 1996) and characterised over-controlled offending as involving one-off extreme acts of violence, such as murder and manslaughter (Megargee & Mendelsohn, 1962). Megargee (1966) described the “Chronically Over-controlled” type as an extremely assaultive person who "is often a fairly mild-mannered, long-suffering individual who buries his resentment under rigid but brittle controls. Under

certain circumstances he may lash out and release all his aggression in one, often disastrous, act. Afterwards he reverts to his usual overcontrolled defenses" (p2). The "Undercontrolled Aggressive" type were described as chronically angry with strong impulses to act aggressively combined with extremely weak inhibitions which results in more frequent but less serious violent acts (Megargee, 1966).

Megargee's (1966) conceptualisation of the chronically over-controlled offender pinpoints suppression of angry feelings until the pressure exceeds the psychological capacity of the person to resist acting upon them. Cognitive explanations have subsequently been offered, which emphasize the aggravating role of cognitive rigidity and anger rumination driving the person to a tipping point in which they can no longer inhibit and suppress angry feelings (Baumeister, Heatherton & Tice, 1994; Chambers et al, 2009; Day, 2009; Howells, 1983; Low & Day, 2015). Lynch (2014) offers a neurobiosocial conceptualisation, defining over-control as a restricted style of coping which results from a convergence of core temperamental and environmental influences and becomes increasingly rigid over time as a function of intermittent reinforcement. Maladaptive over-control coping according to Lynch (2017) involves core deficits in: (i) emotional awareness and expression manifested by minimization of distress, inhibited expression, and/or disingenuous expression; (ii) forming intimate relationships, manifested by aloof and distant relationships and low empathy and validation skills (iii) low receptivity and openness manifested by high risk aversion, low openness, avoidance of novelty, and automatic discounting of critical feedback. Whilst Lynch's neurobiosocial theory has never been applied to offenders, it implicates three overarching influences in the development and maintenance of maladaptive over-control, that is temperament (nature), family/environment (nurture) and self-control tendencies (coping)

Since Megargee's seminal paper various studies have examined his over- and under-controlled typology of violent offenders and it has been identified in other groups, such as intimate partner violence (Hershorn & Rosenbaum, 1991), parolees (Du Toit & Duckitt 1990), sex offending, (Worling 2001), forensic psychiatric patients (Blackburn 1971; 2008; Arnold et al 1979), adult male prisoners (McGurk 1978; McGurk & McGurk 1979), general population (Capsi 2000), clinical samples (Chan et al 2015) and prison officers (McGurk &

McGurk 1979). The presence of over-control in offending populations has been affirmed by both comparison studies (Biro, Vuckovic, & Djuric, 1992; Henderson, 1983; Hershorn & Rosenbaum, 1991) and cluster analytic studies (Blackburn, 1971; Low, K. 2013; Worling 2001), revealing distinct characteristics in regards to offending behaviour, anger regulation, emotion control, cognitive regulation, interpersonal functioning and personality traits. Inconsistent findings and failure to confirm theorised differences between under- and over-control types have also been identified and led some to question the veracity of Megargee's typology (D'Silva & Duggan 2010) and the nature of over-control and potential subtypes (McGurk & McGurk 1979; Blackburn et al 2008; Low, K. 2013).

Despite the association between maladaptive over-control and serious offending (Blackburn, 1975, 1986; du Toit & Duckitt 1990; Low & Day, 2015; McGurk, 1978; Worling, 2001), the assumption that offending stems from under-controlled coping predominates (Novaco 1997; Day, Howells, Mohr, Schall, & Gerace, 2008). Under-controlled coping remains a focal point in risk assessment tools (Douglas, Hart, Webster, & Belfrage, 2013; Wong & Gordon 2006), with offence-related programs typically aiming to reduce risk by improving self-control through cognitive-behavioural interventions (Day et al 2008). To date treatment shows mixed results (Mews et al., 2017), and concerns have been raised that "teaching specific [anger inhibition] strategies to those who already overuse these strategies is likely to be at best ineffective and at worst counter-productive in that they are likely to reinforce and entrench the problem" (Davey, Day & Howells 2005 p631). The iatrogenic effects of offender treatment based on under-controlled coping has not been identified, but Low's (2013) seminal study confirmed that only the under-controlled group of 131 male violent offenders participating in violence reduction treatment benefitted from treatment. Ineffective treatment may also explain why over-controlled offenders spent on average almost 3 years longer in high-secure in-patient services than under-controlled offenders (Blackburn et al 2008). Ethical, practical and economic costs of not adapting offender treatments for over-controlled coping is probable, yet firm conclusions are elusive as over-control offenders remain under-studied, under-recognised and poorly understood.

Reviewing and synthesizing current knowledge to ascertain whether there is a group of offenders who have too much self-control seems an important starting point. If we identify

this over-controlled subsample of offenders, then identifying potential distinguishing characteristics may develop our understanding and recognition of maladaptive over-control as well as stimulating further research.

Review Question

This review aims to provide a comprehensive and critical evaluation of the existing literature, taking into account the methodological quality of studies, to enhance our understanding of over-controlled coping and personality in offending populations. The review objectives are to identify the prevalence of over-control amongst offenders, as well as the socio-developmental, clinical and forensic characteristics which may differentiate over- from under- controlled offenders. Systematically reviewing and synthesizing the extant knowledge may advance our understanding of the over-controlled offender, as well as help theory development, identify promising areas for further research, inform forensic practice and guide future directions.

Review Methods

Identification of Studies

Clarification about current or pre-existing systematic reviews on similar topics will be sought by checking the DARE, PROSPERO, Campbell and Cochrane Collaboration databases. The search strategy aims to find both published and unpublished studies, and a four-step search strategy will be utilized in this review. An initial limited search of Medline and PsycINFO will be undertaken followed by analysis of the text words contained in the title and abstract, and of the index terms used to describe article. The search terms for the initial limited search are outlined in Table 1.

Table 1: Search Terms used in the Initial Search Strategy for Medline and PsychInfo

Condition	Population	Setting
Over-control*	Criminal*	Secur* Hospital*
Overcontrol*	Juvenile Delinquen*	Secur* Service*
Ego control	Felon*	Secur* Facilit*
Ego Resilien*	Inmate*	Secur* Unit*
Self Control OR Self-regulation (depends on indexing term)	Offend*	High Secur*
Anger Regulat*	Parole*	Medium Secur*
Emotional Inhibition	Prisoner*	Low Secur*
Overregulat*	Probation*	Regional Secur*
Over-regulat*	Mental* Disorder*	Maximum Secur*
	Offend*	Prison
		Special Hospital

A second search using all identified keywords and index terms from the initial limited search will then be undertaken across all included databases. The search will be conducted in October 2016 and restricted to English language articles published between 1962-2016:

- Applied Social Sciences Index and Abstracts (ASSIA - ProQuest)
- Criminal Justice Abstracts (EBSCO)
- Health Services Research Projects in Progress (HSRProj)
- IBSS (International Bibliography of the Social Sciences) (ProQuest)
- Medline (ProQuest)
- National Criminal Justice Reference Service (NCJRS) Abstracts
- PsycARTICLES (ProQuest)
- PsycINFO (ProQuest)
- PubMed
- Science Direct
- Social Services Abstracts (ProQuest XML)
- Unpublished dissertations & theses (ProQuest)

Thirdly, the reference list and citations of all identified reports and articles will be searched for additional studies. Fourthly the top five journals containing the highest number of eligible

studies will be hand-searched for further relevant papers in relation to a 5 year time period; additionally, the 10 authors who featured most in cited literature will be contacted as 'expert commentators' and asked to identify any 'grey' literature that may be in existence. Studies identified by these routes will then be reviewed for inclusion. If required authors of primary studies will be contacted to provide missing or additional data.

Study Selection

Studies and publications will be selected according to a Population, Condition and Outcome (PCO) algorithm described below.

The PCOs for this review

- **Participants:** Legally sanctioned individuals, including male, female, adult, young/juvenile offenders (over age 12yrs), prisoners, forensic psychiatric patients or probation/parolees.
- **Condition:** Diagnosed or identified as having over-controlled coping or personality.
- **Outcomes:** Prevalence of over-controlled coping and personality in offender populations, and the clinical, forensic and socio-developmental characteristics of over-controlled offenders.
- **Study design:** Scoping searches revealed that there are likely to be only a limited number of studies examining over-control in offenders, therefore no study examining over-controlled offenders will be excluded on the basis of design alone. If there is insufficient information from group studies then clinical case studies and expert opinion papers will be included.

Study selection will involve an initial screening of titles and abstracts against the inclusion criteria to identify potential papers, and then followed by an examination of the full papers against the inclusion and exclusion criteria to confirm relevancy. Initial screening of studies

for selection will be undertaken by two researchers (LH and AM) and disagreements regarding study eligibility will be resolved by having the article re-reviewed by (BW) for final inclusion or exclusion. The full text of articles meeting the inclusion criteria will be retrieved and reviewed independently by one author (LH). Where it was unclear whether or not the criteria has been met, articles will be re-reviewed by (AM) for final inclusion or exclusion. Data extraction will be completed by one author (LH) and a random sample of 10% of data extraction forms for selected papers will reviewed by (AM) to check consistency. Any disagreement will be discussed with (LH & AM) and, where necessary, the author(s) of the study will be contacted for further information. The references will be managed in RefWorks.

Data Extraction and Quality Assessment

The aim is to perform a systematic review of the available evidence regarding over-controlled offenders, the broad aim and liberal approach to specified study design criteria means a high degree of heterogeneity is expected amongst eligible studies. Given the anticipated range of methodologies featuring in selected studies, including qualitative, quantitative, mixed methods, single-case studies and expert opinion, a range of different critical appraisal tools and approaches to data extraction will be required. Different extraction forms based on methodology will be developed, which include specific details about the population, study design, study method, measures used and outcomes of significance to the review question and specific objectives (Appendix 1). Diagrams and tables summarising the range, quality, and type of research evidence will be produced.

The Mixed Method Appraisal Tool (MMAT - Pluye, Robert, Cargo, Bartlett, O’Cathain et al 2011) will be used for the appraisal stage, as it is specially designed for complex systematic literature reviews that include qualitative, quantitative and mixed methods studies. The MMAT 2011 (Appendix 2) also permits appraisal of the methodological quality for the three methodological domains and three quantitative sub-domains that is randomized controlled, non-randomized and descriptive. For each retained study the methodological quality will be

described using the corresponding criteria, and if relevant an overall quality score will be calculated. For qualitative and quantitative studies suggested MMAT scoring guidelines are the number of criteria met divided by four, with scores varying from 25% (* -one criterion met) to 100% (**** -all criteria met). For mixed methods research studies, the premise is that the overall quality of a combination cannot exceed the quality of its weakest component, thus the overall quality score is the lowest score of the study components, i.e. qualitative (QUAL), quantitative (QUAN) and mixed methods (MM) component. Using this method the score is 25% (*) when *QUAL=1 or QUAN=1 or MM=0*; it is 50% (**) when *QUAL=2 or QUAN=2 or MM=1*; it is 75% (***) when *QUAL=3 or QUAN=3 or MM=2*; and it is 100% (****) when *QUAL=4 and QUAN=4 and MM=3*. Pluye, Gagnon, Griffiths and Johnson-Lafleur, (2009) piloted the MMAT, and found that applying MMAT takes on average 15 minutes per study and an Intra-Class Correlation of 0.8 would be expected between raters.

Data Synthesis

Data will be summarised in narrative and tabular formats, and will include both a quantitative and narrative synthesis. Summary tables will be produced starting with a clear descriptive summary of the selected studies, including information of the sample identification method, sample size, study design, setting, location, measurement used and main findings. Cross-study synthesis will be undertaken, including description of the amount of information found, overall statement of the prevalence of over-control, summary of the results of individual studies and aggregation of findings to generate a comprehensive synthesised set of statements/findings associated with clinical, socio-developmental and forensic factors that can be used to support evidence-based practice and future research. The results are unlikely to be subjected to meta-analysis due to the small number of robust quantitative studies.

Conflicts of interest

There are no conflicts of interest

Acknowledgements

This review will contribute towards a PhD examining over-controlled personality offenders.

References

(See reference section)

9.2 Appendix B: Characteristics of Included Cross-Sectional Studies

Study & origin	N	Sample	Clustering Technique	Identified clusters	Key findings Overcontrolled Clusters
Blackburn, (1971) UK	56	Adult male in-patients maximum secure forensic hospital	Lorr & Nair (1966;1967)	80% classified Repressor (N=17) Depressed Inhibited (N=8) Paranoid aggressive (N=13) Psychopathy (N=7)	<i>Repressors</i> MMPI profile high in defensiveness and impulse control, hyponormal level of anxiety and hostility, mild depressive tendencies and interpersonal difficulties. <i>Depressed Inhibited</i> high on most MMPI symptom scales, elevated depression, social introversion, impulse control, socially anxious and moderate hostility predominantly directed against self.
Blackburn, (1975) UK	79	Adult male in-patients maximum secure forensic hospital	Lorr & Nair (1966)	80% classification Type 1 (N=15) Type 2 (N=21) Type 3 (N=19 - OC) Type 4 (N=8 - OC)	<i>Type 3</i> cluster all MMPI scales low. Pattern suggests defensive denial of psychological problems, a high degree of control and a lack of reported anxiety. <i>Type 4</i> cluster MMPI profile characterised by social shyness, introversion, depression, and moderately hostile but not notably aggressive or impulsive.
Blackburn, (1986) UK	300	Random sample adult male in-patients maximum secure forensic hospital	Method 1 Ward (1963) Method 2 Proctor (1966)	94% classified Controlled (N=84) Inhibited (N=59) Primary Psychopathy (N=49) Secondary Psychopathy (N=90) 74% classified Controlled (N=90) Inhibited (N=30) Primary Psychopathy (N=27) Secondary Psychopathy (N=76)	Group allocation varied across methods - 68% overlap. Overcontrolled clusters had less personality disorder diagnosis, more mental illness and serious psychiatric disability. <i>Controlled</i> subtype: SHAPS profile lower psychopathic deviate score, strong defensive denial, a relative absence of hostile or aggressive feelings, relatively well socialised, free from negative affective experiences, strong impulse control and socially outgoing. <i>Inhibited</i> subtype: SHAPS profile extreme inhibition, socially withdrawn, strong denial, high impulse control, prone to dysphoria and anxiety, relative absence of hostile evaluations of others, a degree of angry feelings but aggressiveness low.

Study & origin	N	Sample	Clustering Technique	Identified clusters	Key findings Overcontrolled Clusters
Blackburn, (1996) UK	144	Adult male in-patients maximum secure forensic hospital	Ward's hierarchical and non-hierarchical method	SHAPS – Controlled (N=43) Inhibited (N=30) Primary psychopaths (N=31) Secondary psychopaths N=32) MCMI – Controlled (N=29) Inhibited (N=26) Primary Psychopathy N=26 Secondary Psychopathy1 (N=31) Secondary Psychopathy 2 (N=26)	Group allocation varied across SHAPS and MCMI clusters - 56% overlap. Overcontrolled clusters more diagnosed as mentally ill. SHAPS: <i>Controlled</i> Cluster are defensive, controlled, low levels of shyness, anxiety, depression, tension and aggression. <i>Inhibited</i> cluster are extremely introverted, shy, high impulse control, anxious, more hostile, depressed and tense. MCMI: <i>Controlled</i> cluster reported few traits of personality disorder but had a peak score on the Compulsive scale and lower than other groups on the Passive-aggressive scale. <i>Inhibited</i> cluster highest of all groups on the Avoidant, Schizoid, Dependent and Schizotypal scales; and lowest on Histrionic, Narcissistic, and Antisocial scales.
Blackburn, Logan, Donnelly & Renwick, (2008) UK	79	Adult male in-patients maximum secure forensic hospital	Ward's hierarchical method and non-hierarchical procedure	94% classified Controlled (N=23) Inhibited (N=12) Primary psychopaths (N=28) Secondary psychopaths (N=16)	APQ derived clusters evidenced similar levels of Hare Psychopathy and childhood abuse. <i>Controlled</i> group scored highest in PCL-R Factor 1 (interpersonal and affective facets), lowest in Factor 2, had fewer PD traits, reported a slightly higher rate of neglect, and were more non-neurotic, agreeable and conscientious on NEO-FFI. <i>Inhibited</i> group evidenced antisocial, borderline, dependent and histrionic traits and scored higher on anxiety, PTSD and childhood sexual and physical abuse than Controlled cluster. They were more neurotic and introverted on NEO-FFI.
DeLisi, Beaver, Vaughn, Trulson, Kosloski, Drury & Wright, (2010) USA	791	Institutionalised male and female juveniles	By intersecting distress and restraint WAI dimensions at age-appropriate means	99% classified Repressor: Low distress and high restraint (N=181) Suppressor: High distress and high restraint (N=80) Reactive: High distress and low restraint (N=288) Nonreactive: Low distress and low restraint (N=239)	Weinberger Adjustment Inventory (WAI) based clusters revealed the overcontrolled groups were less likely to engage in: a) assaults against other wards and staff; b) suicidal activity; c) other misconduct, and d) aggressive misconduct. Juveniles with a reactive personality profile and nonreactive personality profiles were the most noncompliant, followed by repressors and suppressors. No difference in sexual misconduct between clusters.
Henderson, (1982) UK	105	Adult male prisoners with at least one current or previous violent conviction	Method 1: Ward's Method Method 2: Hierarchical	100% classified Method 1: Controlled (N=41) Inhibited (N=12) Disturbed-Hostile (N=26). Extraverted-Hostile (N=26) Method 2 Type 1 (N=32)	Clustering methods 1 and 2 based on eight MMPI supplementary scales showed a consistent but not identical solution. <i>Controlled</i> and <i>Disturbed-Hostile</i> subtypes were supported, but the <i>Inhibited</i> and <i>Extravert-Hostile</i> groups merged using the Wishart method of clustering in Method 2. <i>Controlled</i> group score higher on dominance, overcontrolled hostility and empathy, and lowest on neuroticism, psychoticism, hostility and delinquency. <i>Inhibited</i> group scored significantly lower on

Study & origin	N	Sample	Clustering Technique	Identified clusters	Key findings Overcontrolled Clusters
			Mode Analysis	Type 2 (N=38) Type 3 (N=35)	extraversion, hostility and dominance, and had greater difficulty with various aspects of group relations and friendship network.
Henderson, (1983b) UK	87	Adult male prisoners no previous violent conviction	Ward's hierarchical method	100% classified Controlled (N=29) Inhibited (N=16) Disturbed-Delinquent (N=28) Extraverted-Hostile (N=14)	Based on eight MMPI supplementary scales controlled and inhibited clusters were confirmed. Compared with Henderson (1982) sample, inhibited violent offenders were more disturbed, introverted, anxious and hostile than their non-violent counterpart. <i>Controlled</i> cluster scored highest on overcontrolled hostility and empathy, and higher on dominance and lower on neuroticism than inhibited group. <i>Inhibited</i> cluster scored lowest on extraversion and dominance.
Herzberg & Hoyer, (2009) Germany	91 102	Adult male prisoners Adult male in-patients	Ward's hierarchical method	Study 1: 100% classified Resilient (N=17) Overcontrolled (N=5) Undercontrolled (N=22) Confident (N=38) Reserved (N=9) Study 2: 100% classified Resilients (N=10) Overcontrolled (N=27) Undercontrolled (N=25) Confident (N=33) Reserved (N=7)	<i>Study 1</i> : "Overcontrolled" clusters NEO-FFI profile was by characterised high scores in neuroticism, low scores in extraversion and all other scale scores were average. They had the highest level of self control, often suppressed unwanted thoughts, and their coping style has been linked with depression, obsession and compulsion, and intrusive thinking. Interpersonally they may be prone to being exploited, overly nurturant, and intrusive. <i>Study 2</i> : Overcontrolled group prone to be non-assertive and exploitable. No difference emerged for domineering, overly nurturant, and intrusive behaviour. Overcontrolled individuals had a variety of mental health problems, high levels of clinical distress and high levels of obsessive-compulsive behaviour, depression, anxiety, social anxiety and paranoid ideation.
Herzberg & Roth, (2006) Germany	256	Adult male (n= 241) and female (n=15) prisoners	Ward, (1963)	Resilients Overcontrollers Undercontrollers Confident Reserved No sample sizes stated.	Identified five personality-based clusters in prison population, but only the Resilient prototype sufficiently resembles the general population prototype patterns. Overcontrolled cluster had pronounced scores on Neuroticism, low scores on Extraversion and medium to low scores on Openness, Agreeableness, and Conscientiousness, respectively.
Low & Day, (2015) Australia	305	Adult male prisoners completed violent offending treatment	Not specified	94% classified Regulated (N=129) Over-regulated group (N=100) Unregulated (N=58)	Over-regulated group reported the lowest levels of trait anger, anger expression and the highest levels of anger control but all mean scores were in the normal range.

Study & origin	N	Sample	Clustering Technique	Identified clusters	Key findings Overcontrolled Clusters
McGurk, (1978) UK	40	Adult male remand (murder) prisoners	Ward (1963)	100% classified Repressors (N=6) Depressed Inhibited (N= 4) Psychopathic (N=13) Paranoid Aggressive (N=3) Disturbed aggressive (N=14)	<i>Repressors</i> MMPI profiles within normal limits, few psychiatric symptoms except depressive tendencies, low level of anxiety, hostility and high levels of defensiveness and impulse control. <i>Depressed Inhibited</i> high depression, repression, impulse control, social anxiety and social introversion. Low extraversion and mania, with a moderate degree of hostility directed towards self rather than others. Stress dealt with through guilt, self-criticism, depression and anxiety.
McGurk & McGurk, (1979) UK	60	Adult male remand prisoners	Ward (1963)	100% classified Repressors (N=10) Paranoid aggressive (N=28) Psychopathic (N=22)	<i>Repressors</i> : MMPI profiles within normal limits, few psychotic or neurotic symptoms, low levels of anxiety and hostility, high levels of defensiveness, impulse control and immaturity. Overcontrolled personality associated with crime in general rather than just "angry" assaultive offences.
McGurk, (1981) UK	40	Same sample as McGurk (1978)	Ward (1963)	Under-controlled (N=30) Controlled (N=10)	Overcontrolled subtype were rated by prison officers on a standardised scale as reacting to their sentence without blaming anyone, as seeking approval from staff, as being self-reliant and independent of other inmates, and as presenting with few educational, psychiatric, management or employability problems. Attitudinal variables revealed no significant differences between the groups – both exhibited negative attitudes toward prison and previously offended.
Oljača, Baić & Dinić, (2019) Serbia	179	Adult male prisoners	Latent Class Analysis	100% classified Unadapted (no N stated, 40% classified) Hyperadapted (no N stated, 60% classified)	On the Zuckerman-Kuhlman Personality Questionnaire-50 (ZKPQ-50-CC and Life Events Questionnaire the “ <i>Hyperadapted</i> ” profile was characterised by increased scores on Activity and very low scores on Aggression/Hostility and Impulsive Sensation Seeking. There were no significant differences between profiles in the category of a criminal offense. “ <i>Hyperadapted</i> ” individuals experienced significantly less negative controllable life events, but there were no significant differences between “Unadapted” and “Hyperadapted” on positive and negative uncontrollable life events.
Redondo, Cantos, Muñoz-Rivas & O’Leary, (2019) Spain	483	Adult males community treatment IPV	Ward, (1963)	100% classified Undercontrolled (N=126) Overcontrolled (N=357)	Clusters based on STAXI-2 profiles. No statistically significant differences between the two clusters in terms of educational attainment, marital status, or type of offense. Overcontrolled more likely to be older and working. Overcontrolled individuals were less angry and STAXI-2 profiles were characterised by significantly higher scores for Anger Control In and Out, and significantly lower scores for all other STAXI-2 subscales. Overcontrolled anger group reported significantly lower scores on self-report measures of personality disturbances, psychopathic traits, interpersonal problems, impulsiveness, alcohol abuse, Psychological, Verbal and Physical

Study & origin	N	Sample	Clustering Technique	Identified clusters	Key findings Overcontrolled Clusters
					Aggression, Sexual Coercion, as well as more intensive use of Dominating and Jealous Tactics.
Smith, Monaster sky & Deisher, (1987) USA	262	juvenile male community sexual offending treatment	Ward's hierarchical method	68% classified Group I (N=55) Group III (N=40) Group II (N=28) Group IV (N=55)	<i>Group I</i> (overcontrolled) MMPI profile normal range, shy, worriers with few friends; attempt to portray self as morally above reproach. <i>Group III</i> (overcontrolled) MMPI profile normal range, frank, realistic in describing self, socially outgoing, normal affect and no impaired judgment. Likely to be emotionally overcontrolled and given to emotional outbursts.
Widom, (1978) USA	66	Female awaiting trial prisoners	BDMP2M Dixon (1975)	76% classified Primary psychopath (N=4) Secondary psychopath (N=12) Overcontrolled (N=17) Normal criminal (N = 17)	SHAPS: Overcontrolled group low levels of psychopathology, high denial of psychological problems, high degree of control, hyponormal levels of anxiety, hostility, depression, tension, and psychopathic deviate scores.
Worling, (2001) Canada	97	Juvenile males in community sexual offending treatment	Ward's method, three types.	100% classified Antisocial/Impulsive (N=43) Confident/Aggressive (N=19) Unusual/Isolated (N=15) Reserved (N=20)	CPI: <i>Overcontrolled/Reserved</i> adolescents endorsed prosocial attitudes, cautious when interacting with others and tend to keep their feelings to themselves. Shy and rigid interpersonal orientation may result in limited access to intimate personal relationships. Unusual/Isolated group had a peculiar presentation, were socially isolated and more criminally inclined. Th frequencies of sexual abuse were comparable across the four groups. Antisocial/Impulsive (N=26) were significantly more likely to be experience physically abusive discipline by parents.

9.3 Appendix C: Characteristics of Included Comparison Studies (Samples Assigned History Of Violent Convictions)

Study, origin, sample	N	Sample	Comparison Samples	Key findings
Blackburn, (1968) UK	63	Adult male in-patients maximum secure hospital	Assigned by severity of violent index offence: Extremely Assaultive (EA, N=38) Moderately assaultive (MA, N=25)	<ul style="list-style-type: none"> EA group more likely diagnosed with paranoid psychosis, lower incidence of legally categorised psychopathic disorder, high denial of undesirable attributes, high impulse control, less hostile feelings and slightly more intropunitive.
D'silva & Duggan (2010) UK	51	Adult male in-patients maximum & medium secure hospital	Assigned by chronicity of violent convictions: Single Violent offence (SV, N=19) Repeated Violent Offences (RV, N=32)	<ul style="list-style-type: none"> No statistically significant differences between the SV and RV in IPDE diagnoses and PCL-R scores, but trend that the RV group have more cluster B traits, Antisocial PD traits and higher PCL-R scores. SV offenders significantly more anger control, less anger expression outwardly, and all other STAXI-2 scales did not differ significantly.
Frederiksen, 1975 USA	170	Adult female offenders charged with	Assigned severity of charge or index offence and available for assessment: Extremely Assaultive (EA, N=48) Moderately assaultive (MA, N=23) Aggravated forgery (N=66)	<ul style="list-style-type: none"> EA group typically under the influence of alcohol at time offence, more likely to have prior alcohol/drug abuse, and scored highest on OHS and MMPI Lie scale but did not score lower on hostility, impulsivity and rebelliousness as expected
Hoppe & Singer, (1977) (not stated)	115	Adult male forensic in-patients (Security level unspecified)	Assigned by criminal charge: Murder (N=9). Extremely assaultive (N=35). Rapists (N=15). Child-molesters (N=40). Property offenders (N=16).	<ul style="list-style-type: none"> No difference between offender groups on overcontrolled hostility, self-focus, external focus, and empathy.
* Howells, (1983) UK	106	Adult male in-patients in maximum secure hospital and prisoners	Assigned chronicity of violent convictions: Single Violent Offence (SV, N=29) Repeated Violent Offences (RV, N=77) Non-aggressive prisoners (N=24)	<ul style="list-style-type: none"> SV less likely to construe in a way supportive of criminal lifestyle, more likely to compare self negatively with others, make more negative self-evaluations and more intropunitive thinking. Showed more control in their judgments of others and less extrapunitive judgements. Cognitive appraisals more important than some physiological build up of frustration
Lane & Spruill, (1980) USA	128	Adult male psychiatric in-patients (Level of security unknown)	Method 1: Current charge/conviction for murder, voluntary manslaughter, or assault with a deadly weapon, and expert rater categorization as OC or UC based on case history data. OC (N=9) and UC (N=9)	Method 1: OC group of extremely violent offenders scored significantly higher on OHS compared to UC extremely violent offenders.

Study, origin, sample	N	Sample	Comparison Samples	Key findings
			Method 3: Severity of index offence (N=128) Extremely Assaultive (murder, manslaughter) (N=not stated) Moderately Assaultive (assault with no intent commit murder). (N=not stated) No violent convictions control group	Method 3: OC patients committed more extremely assaultive than moderately assaultive acts, although some OC participants had non-violent instant offences
Lane & Kling, (1979) USA	110	Male forensic psychiatric in-patients	Criminal records and anamnestic data used to rate chronicity of past criminal offenses and the severity of the violent index offense. 25% of sample assigned using ratings:- Overcontrolled (N=12) Undercontrolled (N=15) No violent convictions (N=10)	OC group scored significantly higher on overcontrolled hostility (OHS score mean=17) than UC group (OHS score mean=13.5)
Megargee, (1966) USA	30	Juvenile males detained for assaultive behaviour	Standardised interview rated for amount of aggression on a 10-point scale, and scores used to assign comparison samples: Extremely Assaultive (EA, N=9) Moderately Assaultive (MA, N=21) Control group I: Detained for Incurability (N=20) Control group PO: Detained for Property Offenses (N=20)	EA group had the highest mean score on 13 of the 18 CPI scales, scoring significantly higher on Self control, Responsibility, Well Being, Tolerance, Achievement by Independence, Intellectual Efficiency and Flexibility scales. EA group had high impulse control, more conscientious, responsible, alert to ethical or moral issues, ambitious, enterprising and more likely to value work and effort for their sakes. They appear outwardly conforming, more tolerant, clear thinking, although can be sarcastic and cynical in their verbal behaviour. No difference between EA and MA on extra-punitiveness and hostility and aggression
Megargee, Cook & Mendelsohn, (1967) USA	86	Probationee assaultive	Study 1: Severity of index offence Extremely Assaultive (EA, N=14) Moderately assaultive (MA, N=28) No violent convictions control group (N=44)	Study 1: High scores on the new 31 item OHS identify the overcontrolled assaultive person who commits extremely assaultive crimes.
* Megargee & Carbonell (1993) USA	967	Youthful male prisoners	Assigned chronicity of violent convictions: Single Violent Offence (SV, N=240) Repeated Violent Offences (RV, N=384) No violent convictions (N=343)	SV violent offenders scored higher on CPI Responsibility, Socialisation, and Communitary scales but there was no difference in self control and conservative religious and sexual attitudes. No difference between groups on MMPI validity scales, but SV offenders scored significantly lower on MMPI psychopathic deviate, Hypochondriasis, psychasthenia, schizophrenia, and hypomania subscales, and reported significantly less psychopathology than RVs. No difference in reported drug and alcohol use, social adjustment and prison adjustment, OHS scores and hostility. Significant differences were also obtained on the Q-sort scales for Aggression, Hostility

Study, origin, sample	N	Sample	Comparison Samples	Key findings
				Avoidance, the combined scale of Expression vs. Repression of Aggression and Authority Conflict. SV offenders higher on the Authority Conflict Scale on intake interview and reported significantly less physical violence.
Rawlings, (1973) Scotland	122	Juvenile male prisoners	Approx. 30 per group, but precise group numbers not stated but corrected for unequal sample sizes. GEA: Extreme assault committed in group IEA: Extreme assault committed individually MA: Assault in criminal record but not of lethal proportions. RT: At least two appearances for theft and no record of assault.	Few subjects could be classified as overcontrolled, and no significant difference amongst groups. The Auditory discrimination and Lincoln-Oseretsky motor development distinguished assaulters from thieves, suggesting extreme assaulter may have more neural problems.
Salekin, Ogloff, Ley & Salekin, (2002) Canada	72	Juvenile male adolescent charged	Assigned by severity of charge/convictions: Aggressive homicide (REA, N= 9) Non-aggressive homicide (SEA, N = 9) Violence offences (MA, N=18) Property offenders (PO, N=18) No convictions (N=18)	OHS scores did not differ significantly between the groups, although higher mean t scores for the homicide groups (REA and SEA).
Truscott, (1990) Canada	72	Juvenile males in-patients treatment centre	Severity of violent offence in criminal record: Extremely Assaultive (EA, N=20) Moderately Assaultive (MA) and Non-violent Adolescents. (N=52) Noncriminal control males and females. (N=22) 10 th Grade psychology students (N=94)	OHS scores did not vary with severity of violence. MMPI suggest a tendency toward conformity, defensiveness, and denial of psychological symptoms amongst EA group. Based on expert rating of case records only 5 of the 20 extremely assaultive adolescents could be classified as chronically overcontrolled.
* Verona & Carbonell, (2000) USA	240	Adult female prisoners	Assigned chronicity of violent convictions: and validate MMPI profile Method 1: Single violent offence (SV, N=70) Repeated violent offences (RV, N=59) No violent convictions (N=57) Method 3: Homicide Conviction (N=57) Non-Homicide Conviction (N=72)	SV offenders were over-represented in the group scoring high on OHS. No difference between SV and RV groups on tendency to keep anger in, acting out when angered and anger control as measured by the STAXI

*to support the reader the term “single violent offence” and “repeated violent offences” have been used to describe comparison group assigned on the basis of chronicity of violent offending, however some of the papers in the table used slightly different terminology to label their comparison groups.

9.4 Appendix D: Ethical Approval

From: Hamilton, Laura

Sent: 30 September 2016 16:56

To: [REDACTED] Head of Research and Innovation

Subject: FW: Request for ethical review 2016-102 Hamilton

Dear [REDACTED],

Please find enclosed an email confirming ethical approval for my phd studies. Sorry I forgot to update the form to reflect the change in my project entitled: 'Too much of a good thing': a study of over-controlled in personality disorder offender populations.

Regards,

Laura

From: [REDACTED]

Sent: 30 September 2016 14:17

To: Hamilton, Laura

Subject: RE: Request for ethical review 2016-102 Hamilton

Message sent on behalf of the Chair of the College Research Ethics Committee

Dear Laura

Thank you for your recent submission (No. 2016/102) to the College Research Ethics Committee (CREC) on 13 June 2016 requesting ethical clearance for the project entitled: 'Too much of a good thing': a study of over-controlled in personality disorder offender populations.

We are pleased to inform you that the CREC was happy to confirm that in its judgement there were no further outstanding ethical concerns that required further discussion or exploration prior to data collection and your application has now been approved.

The committee would like to wish you well in the completion of your project.

Yours sincerely

[REDACTED]

[REDACTED]

From: [REDACTED] - Research and Development Support Officer <Kayley.Whyatt@nottshc.nhs.uk>

Sent: 27 September 2016 08:03

To: Hamilton, Laura <laura.hamilton@ntu.ac.uk>

Subject: Confirmation of R&D Approval: RO-DBT: clinical socio-developmental and criminological characteristics of over-controlled offenders

Dear Laura,

Study Title: RO-DBT: clinical, socio-developmental and criminological characteristics of over-controlled offenders

Please accept this email as confirmation in principle that Nottinghamshire Healthcare NHS Foundation Trust will approve the above project, following the receipt of University Ethics Approval.

Kind regards,

[REDACTED]

[REDACTED]

[REDACTED]

9.5 Appendix E: Over- and Undercontrolled Descriptors for Expert Panel Classification

Undercontrol		Overcontrol
High–low or variable sensitivity to threat.	Threat Sensitivity	High sensitivity to threat and high anxious apprehension.
High sensitivity or hypersensitivity to the presence or absence of reward.	Reward Sensitivity	Low sensitivity or insensitive to reward.
Low: disinhibited, impulsive risk taking, actions responsive to current stimuli, and high tolerance for disorganisation.	Self-control Tendencies	High: inhibited, actions responsive to consequences, risk-averse, non-impulsive, and prefer structure and order.
Global processing: a style of integrating information that is characterised by broad perspective taking or taking into account the big picture.	Processing Style	Detail-focused processing: a style of integrating sensory stimuli that is characterised by paying much more attention to the parts than to the whole.
High and variable emotional expression, emotionally labile, excitable, chaotic relationships, and prone to rash action in high emotional states (impulsivity).	Phenotypic Expression	Emotionally static, masks inner feelings or fakes expressions, chronic dysphoria, non-excitable, distant and aloof relationships, and prone to withdrawal in high emotional states. Preference for structure and routine, and may have perfectionistic tendencies. Described as a loner or outsider.
Dramatic, erratic and emotional as a child, and may appear disobedient, energetic, restless, and very physically active. Problems at school and may be poorly socialised and have parents who have social, occupational and legal issues. Antisocial peer network from adolescence, and involvement in gangs likely.	Socio-Developmental Experiences	Shy, timid and very conforming as a child. Socialised, possibly over-socialised, and usually well-adjusted at school with a parent(s) who appears well-adjusted e.g. working. Lack of play or fun in childhood, and may be awkward around playful and friendly exchanges.

9.6 Appendix F: Over-Controlled Extraction Form & Coding Book

9.6.1 Demographics & Background

Participant ID _____ Date/...../.....

Date of admission: _____ Date of birth: _____ Date at discharge: _____

Current marital status: Single Married Widowed Divorced Separated Not known

Any Children: _____ (number)

Ethnic group:

- | | | | |
|---|-------------------------------------|----|---------------------------------------------|
| 1 | White – British | 6 | Asian / Asian British: Bangladeshi |
| 2 | Gypsy / Traveller / Irish Traveller | 7 | Asian / Asian British: Chinese |
| 3 | Mixed / Multiple Ethnic Group | 8 | Asian / Asian British: Other Asian |
| 4 | Asian / Asian British: Indian | 9 | Black / African / Caribbean / Black British |
| 5 | Asian / Asian British: Pakistani | 10 | Other Ethnic Group |

Index Offence at incarceration/detainment: _____

Admitted from: High secure hospital Secure hospital Psychiatric hospital Prison Remand Court Community

Legal category (if held in hospital) 2 3 35 36 37 38 37/41 41 46 47 48 47/49 48/49 Not known

Old MHA classification: Mental Illness (MI) Psychopathic Disorder (PD) Severe / Mental Impairment

New MHA: Mental Disorder Learning Disability

9.6.2 Forensic Background Information

Sentence length: _____ Date of sentence: _____ NPD: _____

Date of Index Offence: _____ IIP/Life sentence: Y / N If yes then what tariff: _____

Any imprisonment since index offence: Y / N / Not Known Number of episodes: _____

Family history of offending: Y / N / Not Known Mother / Father / Siblings / Extended family

CALCULATE ON DATABASE

Number of sentencing dates prior to age 18: _____ Number of convictions prior to age 18: _____

Number of sentencing dates since age 18: _____ Number of convictions since age 18: _____

Age at first violent offence: _____ Age at first sexual offence: _____

Age at first offence: _____ Age at index offence: _____

Year of index offence: _____

Number of imprisonments prior to age 18: _____

Number of secure confinement/ hospitalisations prior to age 18: _____

Number of imprisonments since age 18: _____

Number of secure confinement/ hospitalisations since age 18: _____

Types of offending (include all that apply over the course of the lifetime, including index offence):

	Number of episodes
<p>Violence Against The Person</p> <p>Murder, attempted murder, conspiracy to murder, threats to kill, manslaughter, infanticide, intentional destruction of a viable unborn child, causing death or serious injury by dangerous driving, causing death by careless driving under influence of drink or drugs, causing or allow death or serious physical harm to child, corporate manslaughter, assault with intent to cause serious harm, endangering life harassment racially or religiously aggravated harassment, stalking and harassment, assault with injury, racially or religiously aggravated assault with injury, stalking, assault with/without injury on a constable, cruelty to children/young persons, child abduction, procuring illegal abortion, kidnapping, causing death by aggravated vehicle taking, racially or religiously aggravated assault without injury, and modern slavery.</p>	
<p>Public Order</p> <p>Public fear, alarm or distress, racially or religiously aggravated public fear, alarm or distress, violent disorder, and other offences against the state or public order.</p>	
<p>Possession Of Weapons</p> <p>Possession of firearms/weapons/article with blade or point and possession with intent, other firearms offences, other knives offences.</p>	
<p>Miscellaneous Crimes Against Society</p> <p>Concealing an infant death close to birth, exploitation of prostitution, bigamy, soliciting for the purpose of prostitution, going equipped for stealing, supplying or possessing articles for use in fraud, profiting from or concealing knowledge of the proceeds of crime, handling stolen goods, threat or possession with intent to commit criminal, forgery or use of false drug prescription, other forgery, possession of false documents,</p> <p>Perjury miscellaneous, offender management act, aiding suicide, perverting the course of justice, absconding from lawful custody, bail offences, obscene publications etc,</p> <p>Disclosure, obstruction, false or misleading statements, wildlife crime miscellaneous, other notifiable offences, dangerous driving, and fraud, forgery etc associated with vehicle or driver.</p>	
<p>Sexual Offences</p>	

<p>Sexual assault on a female/male aged 13 and over, sexual assault on a female/male child under 13, rape of a male/female aged 16 and over, rape of a male/female child under 16, rape of a female/male – multiple undefined offenders, sexual activity involving a child under 13, causing sexual activity without consent, sexual activity involving child under 16, incest or familial sexual offences sexual offences other sexual offences, sexual activity etc. With a person with a mental disorder, abuse of children through sexual exploitation, abuse of position of trust of a sexual nature, sexual grooming, other miscellaneous sexual offences, unnatural sexual offences, and exposure and voyeurism.</p>	
<p>Burglary</p> <p>Burglary or attempted burglary – residential, distraction or attempted distraction burglary, aggravated burglary in a dwelling, burglary or attempted burglary - business and community aggravated burglary - business and community burglary.</p>	
<p>Robbery</p> <p>Robbery of business property, and robbery of personal property.</p>	
<p>Theft</p> <p>Blackmail, theft from the person, theft in a dwelling other than from an automatic machine, theft other theft or meter, theft by an employee, theft of mail, dishonest use of electricity, theft or unauthorised taking of a pedal cycle, theft bicycle, shoplifting, theft from an automatic machine or meter, other theft, and making off without payment theft other theft.</p>	
<p>Vehicle Offences</p> <p>Aggravated vehicle taking, theft from vehicle, theft or unauthorised taking of motor vehicle, interfering with a motor vehicle, and other driving offences e.g. no insurance, no licence.</p>	
<p>Arson And Criminal Damage</p> <p>Arson endangering life, arson not endangering life, criminal damage to a dwelling, criminal damage to a building other than a dwelling, criminal damage to a vehicle, other criminal damage, and racially or religiously aggravated criminal damage.</p>	
<p>Drug Offences</p> <p>Trafficking in controlled drugs, other drug offences, possession of controlled drugs (excluding cannabis), and possession of controlled drugs (cannabis).</p>	
<p>Not Otherwise Categorised</p>	
<p>Other comments</p>	

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Types of offending (include all that apply over the course of the lifetime, including index offence):

The information in this section should be drawn directly from the Police National Computer (PNC) record, and in the absence of the original PNC then the Social Worker assessment report is recommended as this typically outlines a full forensic history drawn from a PNC record. If neither record is available then omit this section, and make a referral to the assessment and treatment administrator to request the PNC from the Social Worker manager. Extractors should also check the social worker report for any convictions received whilst being in an institution, as these may have occurred after the PNC record was extracted from the police computer system.

	Conviction	Date of Sentencing	Disposal
Offence 1			
Offence 2			
Offence 3			
And so on (add columns as necessary)			

	Number of victims	Violent offending (Index Offence)	Sexual offending (Index Offence)
Weapon used in offending	N/A	Y / N/ Not Known	Y / N/ Not Known
Type of weapon, if applicable			
Victims 17 or under		Y / N/ Not Known	Y / N/ Not Known

Victims 18 or over		Y / N/ Not Known	Y / N/ Not Known
Male victims		Y / N/ Not Known	Y / N/ Not Known
Female victims		Y / N/ Not Known	Y / N/ Not Known
Stranger victims		Y / N/ Not Known	Y / N/ Not Known
Victims known to the perpetrator		Y / N/ Not Known	Y / N/ Not Known
Level of victim harm (please list all levels of victim harm)		Bruises / cuts / burns _____ Unconscious _____ Death _____ Internal injuries _____ Broken bones _____ Stab / gunshot _____	Bruises / cuts / burns _____ Unconscious _____ Death _____ Internal injuries _____ Broken bones _____ Stab / gunshot _____

PRIOR SUPERVISION FAILURE

Descriptor: Failures during any institutional or community placement are relevant here. If the act resulted in (re-) apprehension, (re-) institutionalisation by a correctional or mental health agency, escape from a correctional facility, elopement from a maximum secure hospital, abscondance whilst on an escorted official visit (e.g., funeral/hospital attendance), re-offence during probation, revocation of parole, or failure to attend for psychiatric treatment as ordered by a court or tribunal. This can also include offences committed when released on bail.

Has the individual failed when on conditional release, probation or parole?	Yes	No
Has the individual ever been recalled to an institution?	Yes	No
Has the individual breached a community order/rehabilitation order/DTO?	Yes	No
Has the individual breached a conditional discharge?	Yes	No

Additional information if required: Information to answer these questions will be in the list of convictions noted above.

Calculate total number of supervision failures from pre-conviction list.

9.6.3 Educational Background

Formal qualifications Yes No Completed secondary education Yes No

Highest level of qualification _____

Multiple schools infant and junior (primary)? Yes No A lot / Some (few occasions) / Rarely-No (once)

- Disruptive behaviour at primary school e.g. fights Yes No D/K
- Expelled or suspended Yes No D/K
- Disturbed sexual behaviour Yes No D/K
- Frequent truanting Yes No D/K
- Bullied by others Yes No D/K
- Bullied others Yes No D/K

Multiple high school/secondary school (post 11yrs)? Yes No A lot / Some (few occasions) / Rarely-No (once)

- Disruptive behaviour at secondary school e.g. fights Yes No D/K
- Expelled or suspended Yes No D/K
- Disturbed sexual behaviour Yes No D/K
- Frequent truanting Yes No D/K
- Bullied by others Yes No D/K
- Bullied others Yes No D/K

Home Schooled or special/boarding school? Yes No D/K

Evidence or diagnosis of a Learning Disability? Yes No D/K

Evidence of a childhood Traumatic Brain Injury? Yes No D/K

Statement of Special Educational needs given? Yes No D/K

School Relationships

Evidence of good teacher relationships Yes No D/K

Other

9.6.4 Family History

Did the individual live with both parents/step-parents (permanent figure) until they were 16 years old? Yes No

If No, then where _____

Which parent(s) left and why? _____

Parenting/care-giver inconsistent parenting/care-giver? Yes No D/K

Number of siblings _____ Same father Yes No Number step-siblings _____ Place in sibling order _____

Is there evidence of

Ever being bullied in the family? Yes No D/K

Ever **bullied** others in the family? Yes No D/K

Being cruel to animals Yes No D/K

Keeps family secrets (linked to maltreatment and losses of self control) Yes No D/K

Growing in deprived area Yes No D/K

Was the individual removed from home / put into care / fostered? Yes No D/K

Age went to permanent care of social services _____ yrs.

Has the individual ever run away from home / care home / boarding school? Yes No D/K

Family moved around a lot Yes No D/K

Was there multiple care home placements? Yes No D/K

Was there multiple foster care home placements? Yes No D/K

Why did they break down _____

Is there evidence of

Parent/child loving, warmth and cohesion		Yes	No	D/K
Parental unresponsiveness or hostility		Yes	No	D/K
Evidence of earned secure attachments – who?		Yes	No	D/K
Mother/step-mother involved in criminality?		Yes	No	D/K
Father/step-parent involved in criminality?		Yes	No	D/K
Mother/step-mother drug/alcohol misuse or dependency?		Yes	No	D/K
Father/step-parent drug/alcohol misuse or dependency		Yes	No	D/K
Mental health issues	Mother/step-mother/Father/step-parent/sibling – What?	Yes	No	D/K
Death of a parent in childhood	Mother/step-mother/Father/step-parent	Yes	No	D/K
Domestic violence	Mother/step-mother/Father/step-parent	Yes	No	D/K
Infidelity	Mother/step-mother/Father/step-parent	Yes	No	D/K
Divorce	Mother/step-mother/Father/step-parent	Yes	No	D/K
Rejection	Mother/step-mother/Father/step-parent	Yes	No	D/K

9.6.5 Relationship History

Descriptor: This refers only to “romantic,” intimate, or non-platonic partnerships, and does not include relationships with friends or family. This item is geared toward whether the individual is able to form and maintain long-term, stable relationships given the opportunity. “Instability” would include many short-term relationships; absence of any relationships or presence of conflict within a long-term relationship.

Intimate Relationships

Current marital status	Single / Married / Divorced / In a relationship / Widowed		
Has the individual ever been married?	Yes	No	D/K
Has the individual ever lived with a man/woman for more than 2 years?	Yes	No	D/K
Has the individual ever been divorced:	Yes	No	D/K
Does the individual have a history of being abused in romantic relationships?	Yes	No	D/K
Does the individual have a history of being an abuser in romantic relationships?	Yes	No	D/K
Does the individual have multiple relationships at one time?	Yes	No	D/K
History of casual sexual liaisons outside or in a secure setting? A lot / Some (few occasions) / Rarely-No (once)			
Sexual relationship with prior staff members?	Yes	No	D/K
Sexual relationships with other patients/prisoners?	Yes	No	D/K
Does the individual have sex with animals or objects?	Yes	No	D/K
Sexual relationships with siblings or parent	Yes	No	D/K
Consenting heterosexual	Yes	No	D/K
Consenting homosexual relationships	Yes	No	D/K

Peer Relationships

Evidence of prosocial friend(s) / prosocial support network?	Yes	No	D/K
Evidence of involvement in gangs ?	Yes	No	D/K
Evidence of involvement with antisocial peer group under 18 years?	Yes	No	D/K
Evidence of involvement with antisocial peer group over 18years?	Yes	No	D/K
Described a loner or social isolated?	Yes	No	D/K

9.6.6 Employment History

Descriptor: Individuals may refuse to seek legitimate employment, have a history of many short-term jobs, or of frequently being sacked or quitting. Also record possible / less serious employment problems. Institutional work programmes may be considered. Temporary employment - period of over a month, whereas sporadic/causal is day here and there.

Worked aged 15 or under? Yes No D/K

Age at first adult job (16 and over? _____ yrs

Does the individual have a legal work history? Yes No D/K

Type of job(s)? _____

If worked, regularly employed / temporary causal - sporadic work / rarely worked or on benefits

Mother's work history regularly employed / temporary causal - sporadic work / rarely worked or on benefits

Father's work history regularly employed / temporary causal - sporadic work / rarely worked or on benefits

Additional information

9.6.7 Child Maltreatment

Modified Maltreatment Classification System (MMCS)

English, D. J. & the LONGSCAN Investigators (1997). Modified Maltreatment Classification System (MMCS). For more information visit the LONGSCAN website at <http://www.iprc.unc.edu/longscan/>

As Modified from the Maltreatment Classification System in;

Barnett, D., Manly, J. T., & Cicchetti, D. (1993). Defining child maltreatment: The interface between policy and research. In D. Cicchetti & S. L. Toth (Eds.), *Child abuse, child development, and social policy* (pp. 7–74). Norwood, NJ: Ablex.

Descriptor: Physical Abuse

Physical Abuse is coded when a caregiver or responsible adult inflicts physical injury upon a child by other than accidental means. Injury does not include culturally sanctioned physical alterations such as circumcision and ear piercing. There are some situations in which the distinction between Physical Abuse and other subtypes becomes ambiguous. The following criteria are provided as guidelines to assist coders in making these distinctions. Physical restraint is typically scored under Emotional Maltreatment. However, in cases in which a child incurs physical injuries when the parent is attempting to restrain the child (e.g. rope burns), then the injury would be scored as Physical Abuse, and the restraint would also be scored under emotional maltreatment. If the caregiver threatens the child but there is no physical contact with the child, Emotional Maltreatment would be scored rather than Physical Abuse. Please see the Emotional Maltreatment scale for further elaboration of these points. Physical injuries that occur as a direct result of sexual interaction (e.g. vaginal or rectal tears) are coded solely under Sexual Abuse. Other injuries that may accompany sexual acts in an effort to force a child to engage in sexual relations (e.g. beatings, burning) are scored under both Physical Abuse and Sexual Abuse.

Physical Abuse

	Yes	No	Severity rating
Age at onset of abuse: _____			
Hit/Kick to face/head/neck	Yes	No	1 2 3 4 5 6 NR
Hit/kick to torso (neck to legs except for buttocks)	Yes	No	1 2 3 4 5 6 NR
Hit/kick to buttocks	Yes	No	1 2 3 4 5 6 NR
Hit/kick to limbs/extremities	Yes	No	1 2 3 4 5 6 NR
Violent handling of the child (pushing, shoving, throwing, pulling, dragging)	Yes	No	1 2 3 4 5 6 NR
Chocking/Smothering (pillow, hand over mouth/nose, cutting off ability to breath)	Yes	No	1 2 3 4 5 6 NR
Burns/scalding	Yes	No	1 2 3 4 5 6 NR
Nondescript abuse (cannot be used if allegation states where or how the child was hurt or if injury occurs on more than three body parts which must be (indicated separately)	Yes	No	1 2 3 4 5 6 NR
Shaking	Yes	No	1 2 3 4 5 6 NR
Total Number of Yes	_____		

Perpetrator Biological mother / biological father / Stepmother / stepfather / parent substitute / other relative / friend / babysitter / stranger / unknown

Sexual Abuse

Age at onset of Sexual Abuse: ____

Overall sexual abuse rating **Yes** **No** 1 2 3 4 5 NR

Perpetrator Biological mother / biological father / Stepmother / stepfather / parent substitute / other relative
/friend / babysitter / stranger / unknown

Physical Neglect **Yes** **No**

Age at onset of Physical Neglect _____

Failure to Provide **Yes** **No**

Failure to provide food Yes No 1 2 3 4 5 NR

Failure to provide clothing Yes No 1 2 ? ? ? NR

Failure to provide shelter Yes No 1 2 3 4 ? NR

Failure to provide medical attention Yes No 1 2 3 4 5 NR

Failure to provide hygiene care Yes No 1 2 3 4 ? NR

Total Number of Yes _____

Lack of Supervision **Yes** **No**

Lack of general supervision Yes No 1 2 3 4 5 NR

Lack of environmental supervision Yes No 1 2 3 4 5 NR

Lack of substitute care supervision Yes No 1 2 3 4 5 NR

Total Number of Yes _____

Total Number of Yes's for Failure to Provide and Lack of Supervision _____

Perpetrator Biological mother / biological father / Stepmother / stepfather / parent substitute / other relative
/friend / babysitter / stranger / unknown

Emotional Maltreatment

Yes No

Age at onset of Emotional Maltreatment: _____

Psychological Safety & Security

Yes No

The caregiver *ignores or refuses to acknowledge* the child's bids for attention (e.g., the caregiver generally does not respond to infant cries or older child's attempts to initiate interaction) **Yes No**

The caregiver allows the child to be exposed to the caregiver's extreme but *nonviolent marital conflict*. **Yes No**

The caregiver makes a serious and convincing *threat to injure* the child. **Yes No**

The caregiver exposes the child to *extreme, unpredictable, and/or inappropriate behavior* (e.g. violence toward other family members, psychotic or paranoid ideation that results in violent outbursts that terrorize the child; not used for DV between adult partners). **Yes No**

The caregiver demonstrates a pattern of *negativity or hostility* toward the child (e.g. the caregiver screams at the children that they can never do anything right). **Yes No**

The caregiver threatens *suicide or abandonment* in front of the child. **Yes No**

The caregiver allows the child to be exposed to *extreme marital violence* in which serious injuries occur to the caregiver; or life-threatening behaviors like choking. **Yes No**

The caregiver makes a *suicidal attempt* in the presence of the child. **Yes No**

The caregiver makes a *homicidal attempt or realistic homicidal threat* against the child without actual physical harm to the child. **Yes No**

The primary caregiver *abandons the child* for 24 hours or longer without any indication of when or if he or she will return and where he or she can be located. **Yes No**

Total Number of Yes _____

Perpetrator Biological mother / biological father / Stepmother / stepfather / parent substitute / other relative / friend / babysitter / stranger / unknown

Acceptance & Self-esteem

Yes No

The caregiver *undermines the child's relationships* with other people significant to the child (e.g., makes frequent derogatory comments about other parents.) **Yes No**

The caregiver often *belittles or ridicules the child* (e.g. calls the child "stupid", "loser", "wimp"). **Yes No**

The caregiver consistently thwarts the child's developing sense of maturity and responsibility (e.g. <i>infantilizes</i> the child).	Yes	No
The caregiver <i>rejects or is inattentive to</i> or unaware of the child's needs for affection and positive regard (e.g., the caregiver does not engage in positive or affectionate interactions with the child; this lack of attention is a chronic pattern).	Yes	No
The caregiver <i>blames the children for marital or family problems</i> (e.g., tells the children that they are the reason for the spouses divorce).	Yes	No
The caregiver sets up the child to fail or to feel inadequate by <i>having inappropriate or excessive expectations</i> for the child.	Yes	No
The caregiver calls the child <i>derogatory names</i> (e.g. "slut", "whore", "worthless").	Yes	No
The caregiver <i>blames</i> the child for the <i>suicide or death</i> of another family member	Yes	No

Total Number of Yes _____

Perpetrator Biological mother / biological father / Stepmother / stepfather / parent substitute / other relative / friend / babysitter / stranger / unknown

Age-appropriate autonomy **Yes No**

The caregiver regularly expects or requires the child to assume an <i>inappropriate level of Responsibility</i> (e.g., school-aged children assuming primary responsibility for caretaking younger children; the report must include an explicit statement that the child is responsible for the caretaking role).	Yes	No
The caregiver <i>uses fear or intimidation</i> as a method of disciplining. INCLUDE HERE PRESSURING A CHILD TO KEEP SECRET(S) ABOUT A FAMILY SITUATION.	Yes	No
The caregiver does not permit <i>age-appropriate socialization</i> (e.g. school age child not permitted to play).	Yes	No
The caregiver places the child in a <i>role-reversal</i> (e.g. child is expected to take care of the caregiver).	Yes	No

Total Number of Yes _____

Perpetrator Biological mother / biological father / Stepmother / stepfather / parent substitute / other relative / friend / babysitter / stranger / unknown

Restriction

Yes No

The caregiver *binds* the child's hands and feet for moderate periods of time (e.g. approximately 2 to 5 hours), the child is not attended

Yes No

The caregiver *confines and isolates the child* (e.g., locks the child in his or her room), and the confinement is between five and eight hours.

Yes No

The caregiver uses *restrictive methods to bind* a child or places the child in close confinement for less than two hours. (Close confinement is scored in situations in which the child's movement is extremely restricted, or the temperature, ventilation, or lighting is severely limited or is maintained in a detrimental range).

Yes No

The caregiver uses *extremely restrictive methods to bind* a child or places the child in close confinement for two or more hours (e.g. the child is tightly tied to a chair, or locked in a trunk).

Yes No

The caregiver *confines the child to an enclosed space* (e.g. locks the child in a closet or small space) for extended periods (e.g., more than 8 hours).

Yes No

Total Number of Yes _____

Perpetrator Biological mother / biological father / Stepmother / stepfather / parent substitute / other relative / friend / babysitter / stranger / unknown

Total Number of Yes's for all of the Emotional Maltreatment categories _____

Social Non-Conformity

Yes No

Age at onset of Social Non-Conformity: _____

Moral & legal Maltreatment

Yes No 1 2 3 4 5 NR

Educational Maltreatment

Yes No 1 2 3 4 5 NR

Age at onset of abuse: _____

Perpetrator Biological mother / biological father / Stepmother / stepfather / parent substitute / other relative / friend / babysitter / stranger / unknown

Evidence of chronic parental invalidation (overcontrol)

Yes No D/K

Parents punish, physical or verbal, child in response to display of emotion

Yes No D/K

Parents become distressed by child's display of emotion

Yes No D/K

Parental over-protection	Yes	No	D/K
Parenting/care-giver excessive criticism or value correctness over emotional care	Yes	No	D/K
Strict/Harsh and overly rule bound parenting	Yes	No	D/K
Parenting practices promoted perfectionism and high value on achievement	Yes	No	D/K
Parenting practices modelling high inhibition	Yes	No	D/K
Parents modelled high levels of social comparison	Yes	No	D/K
Little evidence of playful spontaneity and parental play with children	Yes	No	D/K
Child had adult responsibilities e.g. looking after siblings, parenting the parent	Yes	No	D/K

Total number of Yes _____

Perpetrator: Biological mother / biological father / Stepmother / stepfather / parent substitute

9.6.8 Childhood Maltreatment Code Book

1. Physical Abuse

Physical Abuse Categories

- Hit/Kick to face/head/neck
- Hit/kick to torso (neck to legs except for buttocks)
- Hit/kick to buttocks
- Hit/kick to limbs/extremities
- Violent handling of the child (pushing, shoving, throwing, pulling, dragging)
- Chocking/Smothering (pillow, hand over mouth/nose, cutting off ability to breath)
- Burns/scalding
- Nondescript abuse (cannot be used if allegation states where or how the child was hurt or if injury occurs on more than three body parts which must be indicated separately)
- Shaking

Severity rating for all Physical Abuse categories except Shaking

- 1) Dangerous acts, but no marks indicated
- 2) Minor marks (small scratches, cuts or bruises)
- 3) Numerous or non-minor marks; single non-minor mark coded here
- 4) Medical/Emergency Treatment; hospitalized less than 24 hours (goes to emergency room)
- 5) Hospitalized more than 24 hours (concussion/monitored in hospital for several days)
- 6) Permanent disability/disfigurement/fatality

Severity rating for Shaking

- 1) Child over age of two is shaken by his caregiver, and no marks result
- 2) A child over the age of two is shaken by a caregiver and bruises are left.
- 3) A child under the age of two is shaken by a caregiver (with no indication of resulting harm). A child has a sore neck and arms after being shaken by a caregiver.
- 4) A doctor noticed or suspected as a result of examination that a caregiver was shaking or had shaken a baby.
- 5) A child is hospitalized with Shaken Baby Syndrome.
- 6) A child dies, is brain damaged, or has a broken neck due to having been shaken.

2. Sexual Abuse

Between caregiver or other responsible adult

- 1) The caregiver exposes the child to explicit sexual stimuli or activities, although the child is not directly involved
 - Pornography, no attempt to prevent child from being exposed to sexual activity, discusses sex explicitly in front of child (non-educational); graphic depiction of caregivers sexual activity or fantasies to the child
- 2) The caregiver makes direct requests for sexual contact with the child. The caregiver exposes his or her genitals to the child for the purpose of adult sexual gratification or in an attempt to sexually stimulate the child
 - Caregiver asks child to engage in sexual relations, but no physical contact involved, caregiver invites child to watch him/her masturbate
- 3) The caregiver engages the child in mutual sexual touching, or has the child touch the caregiver for sexual gratification. The caregiver touches the child for sexual gratification

- Caregiver fondles the child for sexual gratification, caregiver engages in mutual masturbation with the child
- 4) The caregiver *physically attempts to penetrate the child* or actually penetrates the child sexually. This includes coitus, oral sex, anal sex, or any other form of sodomy.
 - Caregiver molests the child, engages/attempts intercourse with the child, child has venereal disease where no information regarding sexual contact is known, a mother has oral sex with son
- 5) The caregiver has *forced intercourse* or other forms of sexual penetration. Force includes the use of manual or mechanical restraint, for the purpose of engaging the child in sexual relations. Force also includes use of weapons, physical brutality, and physically overpowering the child, specifically for engaging in sexual relations.
 - Caregiver prostitutes the child, ties child to bed and rapes child (emotional maltreatment also scored), sodomizes the child at gunpoint, forces the child to participate in filming pornographic movies, invites one/more partners to have sexual relations with the child

3. **Physical Neglect**

Physical Neglect Categories

- ***Failure to Provide; food, clothing, shelter, medical/dental/mental health care, hygiene***
- ***Lack of supervision; general, environmental, substitute care***

Failure to provide

Physical Neglect, Failure to Provide, is coded when a caregiver or responsible adult fails to exercise a minimum degree of care in meeting the child's physical needs. When families are below the poverty level, physical neglect is scored if children's physical needs are not met because the parents fail to access available community resources for the well-being of their children. For example, parents are unable to provide food for their children; however, they have not taken the necessary steps to apply for food stamps or to seek alternate sources of emergency sustenance.

Failure to provide Food

- 1) The caregiver does not ensure that food is available for *regular meals*. The child (less than age 10) often has had to fix his or her own supper and/or occasionally misses meals because of parental negligence.
 - A 9-year old child fixes dinner several times per week because the caregivers are sleeping.
- 2) The caregiver does not ensure that any *food is available*. The house is without food often, and two or more consecutive meals are missed 2-3 times per week. The caregiver does not feed the child for 24 hours.
 - A social worker has visited the home several times when no food has been available. The children report that they do not have lunch or dinner two or three times per week.
- 3) The caregiver does not provide meals on a regular basis, thereby perpetuating a pattern of *frequently missed meals*; as many as four or more periods of at least two consecutive meals per week are unavailable to the child.
 - The children are not fed frequently. They have missed two consecutive meals an average of four times a week for several months.
- 4) The caregiver has provided such poor nourishment that the *child fails to gain weight or grow at the rate expected* for their development. The failure to grow as expected is not due to any identifiable organic factors.

- 5) The caregiver has provided such *poor nourishment or care* to the child that physical consequences have ensued such as weight loss in an infant, severe malnutrition, or severe nonorganic failure to thrive (diagnosed by a physician or other medical professional).
 - The child is diagnosed as being severely malnourished.

Failure to provide Clothing

- 1) The caregiver fails to provide *clothing* for the child that is adequately clean and *allows freedom of movement* (e.g. the clothing is so small that it restricts movement or so large the child often trips or has difficulty keeping the clothing on).
 - The child always wears clothing so small it restricts movement.
- 2) The caregiver does not dress the child in *clothing that is appropriate for the weather* (e.g. lightweight clothing during the winter).
 - A child has walked to school several days wearing only a thin jacket without hat or gloves. The temperature has averaged 25 degrees Fahrenheit.

No Examples given for severity levels 3-5.

Failure to provide Shelter

- 1) The caregiver does not attempt to *clean the house*. Garbage has not been removed, dirty dishes are encrusted with food, and floors & other surfaces are very dirty. An unpleasant odour from garbage and other debris permeates living quarters. INCLUDE, NON SPECIFIC POTENTIALLY HAZARDOUS LIVING SITUATIONS, EXAMPLE: AN INFANT SLEEPING IN A ROOM SO CLUTTERED THEY WOULD BE UNABLE TO GET IT OUT IN A CASE OF FIRE
- 2) The caregiver is aware that the *house is infested* with roaches or other vermin and has not attempted to improve the conditions. The caregiver does not ensure adequate *sleeping arrangements* for the child (e.g. there are no beds or mattresses, or the mattresses are filthy & sodden with urine or other substances likely to promote the growth of mould or mildew).
- 3) The caregiver fails to make *adequate provisions for shelter* for the family. For example, the caregiver does not acquire or maintain public assistance, resulting in a loss of residence or loss of financial assistance for seven days or more.
 - Evicted because the parent did not take appropriate actions to maintain public assistance and made no other arrangements for making rent payments. The family had no stable living arrangements for **two weeks**.
- 4) The caregiver has made *no arrangements for adequate shelter* (e.g. the caregiver has not sought heat during the winter; the family is living in a car because alternative housing was not sought). The condition continues for prolonged periods.
 - The children live in an unheated home because the parents have failed to ensure that heating was available. During the winter, the children come to school with frostbite.

No examples given for level 5

Failure to provide medical attention

- 1) The caregiver has missed several of the child's *medical or dental appointments*, and often fails to take the child to the doctor or dentist for "check-ups" or "well-baby appointments". The caregiver does not ensure that the child is taken to the doctor or health clinic for adequate immunizations, and medical personnel have expressed concern. The caregiver does not attend to a *mild behaviour problem* about which professionals or paraprofessionals have commented (e.g., the child exhibits some symptomatology, but displays relatively mild impairment in school or social functioning).
 - The caregiver has failed to sign papers for evaluation of a behavior problem that has been reported at school.
- 2) The caregiver seeks medical attention but does not follow through consistently with *medical recommendations* for a minor illness or infection (e.g., prescribed medicine is not administered for mild infection, chronic head lice is not treated).
 - The child has been diagnosed with an ear infection, but the parent does not follow through with administration of the prescribed antibiotic.
- 3) The caregiver does not seek or follow through *with medical treatment for moderately severe medical problems* (e.g. the caregiver does not follow preventive measures for a chronic heart condition, or moderately elevated blood lead levels are left untreated), or the caregiver administers medical treatment that is inappropriate without consulting a doctor (e.g., caregiver gives child mild sedatives to control child, without doctor's consultation). *Need evidence of symptoms or denial of medically recommended treatment.* The expectant mother jeopardizes the health of her unborn child by using *alcohol or drugs during pregnancy, but no fetal alcohol or drug symptoms are evident.*
 - The parent has been drunk several times during pregnancy. The child has come to school with an infected cut. Despite notes from the school nurse
- 4) The caregiver does not seek or comply *with medical treatment for potentially life-threatening illness or injury* (e.g. the child is not taken to the Emergency Room for severe bleeding, third degree burn, fractured skull).
 - The child was hit by a car, receiving a fracture and severe cuts and bruises, The child came to school complaining of pain and stated that the parents would not take him to the hospital.
- 5) The caregiver has abused alcohol or drugs during pregnancy to the extent that the infant is born with Fetal Alcohol Syndrome or a *congenital drug addiction*. The caregiver provided such *gross inattention to the child's medical needs* that the child died or was permanently disabled as a result of lack of medical treatment. The caregiver does not seek professional help for the child's *life-threatening emotional problems* (e.g. suicidal or homicidal attempts).
 - At birth, the child is addicted to heroin. The caregiver was informed that the child had expressed suicidal ideation, but the caregiver did nothing to ensure the child's safety.

Failure to provide hygiene

- 1) The caregiver does not attempt to keep the child clean. The caretaker *bathes* the child and/or washes the child's hair very infrequently. The child brushes teeth only infrequently or not at all, and signs of tooth decay or discoloration are evident
 - The child is dirty and frequently scratches matted hair. Clothing is dirty and smells of urine.
- 2) The caregiver does not change the infant's diaper frequently, often leaving *soiled diapers unchanged* for several hours, resulting in diaper rash.
- 3) The caregiver maintains a *somewhat unsanitary living situation*, where spoiled food or garbage are frequently present and/or where rat or vermin infestation is extreme and untreated.
 - A social worker has visited the home several times, and each time the house has been a mess. Dirty dishes and spoiled food were all over the kitchen table, counters, and sink. Rats were seen in the open garbage bins by the front door.

- 4) The caregiver maintains the home environment such that *living conditions are extremely unhealthy* (e.g. feces and urine are present in living areas).

No example given for 5

Lack of supervision

General supervision

- 1) The caregiver fails to provide adequate supervision or arrange for alternate adequate supervision for *short periods of time* (i.e. less than 3 hours) with *no immediate source of danger* in the environment.
 - An eight year-old is *left alone* during the day for a few hours.
- 2) The caregiver fails to provide supervision or arrange for alternate adequate supervision *for several hours* (approximately 3-8 hours) with *no immediate source of danger in the environment*. Children receive *inadequate supervision despite a history of problematic behavior* (e.g., impulsive behavior, hyperactivity).
 - The child is left alone frequently during the day *without a responsible caregiver* available. Children get into trouble with neighbours because of lack of supervision.
- 3) The caregiver fails to provide adequate supervision for *extended periods of time* (e.g., approximately 8 to 10 hours.)
 - The child is *left alone at night* (e.g. for 8-10 hours). A 6-year old is locked out of the home alone, and the caregiver does not return until evening.
- 4) The caregiver does not provide supervision for *extensive periods* of time (e.g., overnight, "hours at a time," or approximately 10-12 hours). A child with a known *history of destructive or dangerous acts* (e.g., fire-setting, suicidal ideation) is left unsupervised.
 - A grade-school-aged child is *left alone overnight*.
- 5) The caregiver fails to provide adequate supervision for *more than 12 hours*.
 - A preschool child is *left alone for 24 hours*. A child is *kicked out* of the home with no alternative living arrangements.

Lack of supervision; environment

- 1) Pre-schoolers play outside unsupervised.
- 2) The caregiver fails to provide supervision for *short periods of time* (less than 3 hours) when the children are in an *unsafe* play area.
 - The child is allowed to play in an unsafe play area (e.g. broken glass present, old basement or garage cluttered with toxic chemicals, power tools, or old refrigerator) unsupervised.
- 3) The caregiver allows the child to play in an *unsafe play area for several hours* (approximately 3-8 hours).
- 4) The caregiver allows the child to play in an area that is *very dangerous* (i.e. high probability that the child will be hit by a car or fall out of a window, get burned, or drown).
 - The child is allowed to play by highway, or on the roof of a condemned building.
- 5) The caregiver places the child in a *life-threatening situation*, or does not take steps to prevent the child from being in a life-threatening situation. INCLUDE HERE DRIVING DRUNK WITH CHILDREN IN CAR.
 - The caregivers keep *loaded firearms* in a location that is accessible to the child. A toddler plays near a swimming pool unsupervised (Note that for a toddler, being unsupervised near water is considered life threatening because of the high frequency of deaths by drowning to this age of child). Not in a car seat if younger than 6 years old or weighing less than 60 pounds.

Lack of supervision; substitute care

- 1) Children are left in the care of *questionably suitable baby-sitters* (e.g., preadolescent, mildly impaired elderly person) for short periods of time (i.e. less than 3 hours).
- 2) The caregiver provides poor supervisors for *several hours* (3-8 hours).
 - An infant is left in the care of an 8 year old for several hours (In this case the infant is given a code of 2. The 8-yr. old would be given a code of 1 under Lack of Supervision, similar to the example under level 1 in this category).
- 3) The child is left in the care of an unreliable caregiver (e.g. one who is known to drink, or is extremely inattentive, or the parent makes no attempt to ensure that the caregiver was reliable) for several hours.
- 4) The child is *allowed to go with a caregiver* who has a known history of violence (known to the caregiver) and/or sexual acts against children or who has a restraining order prohibiting contact with the child.
INCLUDE HERE IF THE PRESENCE OF A SEXUAL OFFENDER IS IN THE HOME OR IS ALLOWED TO HAVE ANY CONTACT WITH THE CHILD.

No examples given for 5.

4. Emotional maltreatment

Emotional maltreatment categories

- **Psychological safety and security**; the need for a family environment free of excessive hostility and violence, and the need for an available and stable attachment figure.
- **Acceptance and self-esteem**; the need for positive regard and the absence of excessively negative or unrealistic evaluation, given the child's particular developmental level.
- **Age appropriate autonomy**; the need to explore the environment and extra familial relationships, to individuate within the bounds of parental acceptance, structure, and limit setting, without developmentally inappropriate responsibility or constraints placed on the child.

Psychological Safety & Security

14 The caregiver *ignores or refuses to acknowledge* the child's bids for attention (e.g., the caregiver generally does not respond to infant cries or older child's attempts to initiate interaction)

25 The caregiver allows the child to be exposed to the caregiver's extreme but *nonviolent marital conflict*.

33 The caregiver makes a serious and convincing *threat to injure* the child.

36 The caregiver exposes the child to *extreme, unpredictable, and/or inappropriate behavior* (e.g. violence toward other family members, psychotic or paranoid ideation that results in violent outbursts that terrorize the child; not used for DV between adult partners).

37 The caregiver demonstrates a pattern of *negativity or hostility* toward the child (e.g. the caregiver screams at the children that they can never do anything right).

41 The caregiver threatens *suicide or abandonment* in front of the child.

42 The caregiver allows the child to be exposed to *extreme marital violence* in which serious injuries occur to the caregiver; or life-threatening behaviors like choking.

51 The caregiver makes a *suicidal attempt* in the presence of the child.

52 The caregiver makes a *homicidal attempt* or *realistic homicidal threat* against the child without actual physical harm to the child.

53 The primary caregiver *abandons the child* for 24 hours or longer without any indication of when or if he or she will return and where he or she can be located (Note: Lack of Supervision and Failure to Provide may also be scored unless provisions are made for the child's physical well-being and need for supervision to be addressed. See earlier description for an elaboration of the interface among Emotional Maltreatment, Lack of Supervision, and Failure to Provide in instances of abandonment.

Acceptance & Self-esteem

12 The caregiver *undermines the child's relationships* with other people significant to the child (e.g., makes frequent derogatory comments about other parents.)

13 The caregiver often *belittles or ridicules the child* (e.g. calls the child "stupid", "loser", "wimp").

23 The caregiver consistently thwarts the child's developing sense of maturity and responsibility (e.g. *infantilizes* the child).

24 The caregiver *rejects or is inattentive to* or unaware of the child's needs for affection and positive regard (e.g., the caregiver does not engage in positive or affectionate interactions with the child; this lack of attention is a chronic pattern).

31 The caregiver *blames the children for marital or family problems* (e.g., tells the children that they are the reason for the spouses divorce).

32 The caregiver sets up the child to fail or to feel inadequate by *having inappropriate or excessive expectations* for the child.

34 The caregiver calls the child *derogatory names* (e.g. "slut", "whore", "worthless").

43 The caregiver *blames* the child for the *suicide or death* of another family member .

Age-appropriate autonomy

11 The caregiver regularly expects or requires the child to assume an *inappropriate level of responsibility*

(e.g., school-aged children assuming primary responsibility for caretaking younger children; the report must include an explicit statement that the child is responsible for the caretaking role).

15 The caregiver *uses fear or intimidation* as a method of disciplining. INCLUDE HERE PRESSURING A CHILD TO KEEP SECRET(S) ABOUT A FAMILY SITUATION.

21 The caregiver does not permit *age-appropriate socialization* (e.g. school age child not permitted to play

22 The caregiver places the child in a *role-reversal* (e.g. child is expected to take care of the caregiver).

Restriction

35 The caregiver *binds* the child's hands and feet for moderate periods of time (e.g. approximately 2 to 5 hours), the child is not attended

44 The caregiver *confines and isolates the child* (e.g., locks the child in his or her room), and the confinement is between five and eight hours.

45 The caregiver uses *restrictive methods to bind* a child or places the child in close confinement for less than two hours. (Close confinement is scored in situations in which the child's movement is extremely restricted, or the temperature, ventilation, or lighting is severely limited or is maintained in a detrimental range).

54 The caregiver uses *extremely restrictive methods to bind* a child or places the child in close confinement for two or more hours (e.g. the child is tightly tied to a chair, or locked in a trunk).

55 The caregiver *confines the child to an enclosed space* (e.g. locks the child in a closet or small space) for extended periods (e.g., more than 8 hours).

Social Non-Conformity

Moral-Legal Maltreatment

- 1) ML: The caregiver permits the child to be present for adult activities for which the child is under age.
 - The caregiver takes the child to drunken parties and adult bars that are clearly not family situations.
- 2) ML: The caregiver participates in illegal behavior with the child's knowledge (e.g., shoplifting, selling stolen merchandise).
 - The child was present when the caregiver was selling drugs.
- 3) ML: The caregiver knows that the child is involved in illegal activities but does not attempt to intervene (e.g., permits vandalism, shoplifting, drinking).
 - The caregiver has been informed that the child has been shoplifting, but the caregiver has done nothing.
- 4) ML: The caregiver involves the child in misdemeanors (e.g. child is encouraged to shoplift, child is given drugs). Adults encourage or force participation in illegal activities. INCLUDE HERE GIVING DRUGS OR ALCOHOL TO A CHILD.
 - The caregiver encourages the child to steal food from the grocery store.
- 5) ML: The caregiver involves the child in felonies (e.g., the child participates in armed robbery, kidnapping).

- The child has been living in a drug house run by the caregivers. The child has been involved in selling drugs and has participated in armed conflicts with other drug dealers.

Educational Maltreatment

- 1) ED: The caregiver often lets the child stay home from school, and the absences are not the result of illness or family emergency (e.g. a death in the family). The absences occur for less than 15% of the reported period.
 - ED: The caregiver allows the child to miss 25 days of school in a school year without exceptions
- 2) ED: The caregiver allows the child to miss school as much as 15%-25% of the reported period, not due to illness.
 - ED: The caregiver allows the child to miss school as much as 15%-25% of the reported period, not due to illness.
- 3) ED: The caregiver keeps the child out of school or knows that the child is truant for extended periods (26%-50% of year, or as many as 16 school days in a row) without caregiver's intervention.
 - ED: The child missed 3 consecutive weeks of school, not due to illness.
- 4) ED: The caregiver frequently keeps the child out of school for significant amounts of time (more than 50%) of the reported period, or 16+ days in a row), but the child maintains school enrolment.
 - ED: The family has moved several times, and each time, the child has missed significant periods of school. The child is enrolled, but has missed more than half of the school year.
- 5) ED: The caregiver encourages a child (less than 16 years old) to drop out of school or does not send the child to school at all.
 - ED: The caregiver has not enrolled the child in school, and the child is receiving no educational instruction.

Additional Maltreatment Codes

Timing of Abuse If the Social Worker report states the age of onset or ages of onset record this along with the duration of abuse. In the absence of specific times and ages, record as follows if sufficient information is available:

- Childhood only (0-10 years)
- Adolescence only (11-16years)
- Childhood & Adolescence (0-16 years)

Chronicity

- **Very Frequent:** Abuse events occurred very frequently, this could be daily or weekly or monthly, over a sustained period.
- **Frequent:** Abuse events may occur few times or in short-concentrated periods over a number of different years
- **Occasional:** Abuse events occurred a few times over childhood and/or adolescence
- **Rare:** One or two single episode events

9.6.9 Transformation and Integration Plan

SCHOOL ADJUSTMENT (RANGE 0-22)

- | | | |
|------------------------------------------------------------------------|----------------|--------------------|
| 1. Formal qualifications | REVERSE | Yes (0) No (1) D/K |
| 2. Completed secondary education | REVERSE | Yes (0) No (1) D/K |
| 3. Home Schooled or special/boarding school for challenging behaviour? | | Yes (1) No (0) D/K |
| 4. Evidence of good teacher-pupil relationships | REVERSE | Yes (0) No (1) D/K |

PRIMARY SCHOOL ADJUSTMENT (SCORE RANGE 0-9)

- | | | |
|-------------------------------------------------------|-------------------------------------------------------------|--------------------|
| 1. Multiple schools infant and junior (primary)? | | Yes (1) No (0) D/K |
| 2. Amount of school changes | A lot (2) / Some (few occasions) (1) / Rarely-No (once) (0) | |
| 3. Disruptive behaviour at primary school e.g. fights | | Yes (1) No (0) D/K |
| 4. Expelled or suspended | | Yes (1) No (0) D/K |
| 5. Disturbed sexual behaviour | | Yes (1) No (0) D/K |
| 6. Frequent truanting | | Yes (1) No (0) D/K |
| 7. Bullied by others | | Yes (1) No (0) D/K |
| 8. Bullied others | | Yes (1) No (0) D/K |

SECONDARY SCHOOL ADJUSTMENT (SCORE RANGE 0-9)

- | | | |
|-------------------------------------------------------|-------------------------------------------------------------|--------------------|
| 1. Multiple schools infant and junior (primary)? | | Yes (1) No (0) D/K |
| 2. Amount of school changes | A lot (2) / Some (few occasions) (1) / Rarely-No (once) (0) | |
| 3. Disruptive behaviour at primary school e.g. fights | | Yes (1) No (0) D/K |
| 4. Expelled or suspended | | Yes (1) No (0) D/K |

- | | |
|-------------------------------|--------------------|
| 5. Disturbed sexual behaviour | Yes (1) No (0) D/K |
| 6. Frequent truanting | Yes (1) No (0) D/K |
| 7. Bullied by others | Yes (1) No (0) D/K |
| 8. Bullied others | Yes (1) No (0) D/K |

CHILDHOOD STABILITY (RANGE 0-22)

Stability of Place (0-9)

- | | |
|----------------------------------------------------------------------------------------------------------------|--------------------|
| 1. Did the individual live with both parents/(permanent figure) until they were 16 years old? (REVERSE) | Yes (0) No (1) D/K |
| 2. Ever being bullied in the family? | Yes (1) No (0) D/K |
| 3. Ever bullied others in the family? | Yes (1) No (0) D/K |
| 4. Growing in deprived area | Yes (1) No (0) D/K |
| 5. Was the individual removed from home / put into care / fostered? | Yes (1) No (0) D/K |
| 6. Has the individual ever run away from home / care home / boarding school? | Yes (1) No (0) D/K |
| 7. Family moved around a lot | Yes (1) No (0) D/K |
| 8. Was there multiple care home placements? | Yes (1) No (0) D/K |
| 9. Was there multiple foster care home placements? | Yes (1) No (0) D/K |

Stability of Care-Giver (0-13)

- | | |
|----------------------------------------------------------------------------------|--------------------|
| 1. Parent/child loving, warmth and cohesion (REVERSE) | Yes (0) No (1) D/K |
| 2. Parental unresponsiveness, hostility, absence and/or abuse weakens attachment | Yes (1) No (0) D/K |
| 3. Evidence of earned secure attachments – who? (REVERSE) | Yes (0) No (1) D/K |

4. Mother/step-mother involved in criminality?	Yes (1) No (0) D/K
5. Father/step-parent involved in criminality?	Yes (1) No (0) D/K
6. Mother/step-mother drug/alcohol misuse or dependency?	Yes (1) No (0) D/K
7. Father/step-parent drug/alcohol misuse or dependency	Yes (1) No (0) D/K
8. Mental health issues Mother/step-mother/Father/step-parent/sibling	Yes (1) No (0) D/K
9. Death of a parent in childhood Mother/step-mother/Father/step-parent/sibling	Yes (1) No (0) D/K
10. Witnessed Domestic violence	Yes (1) No (0) D/K
11. Parental Infidelity	Yes (1) No (0) D/K
12. Parental Divorce	Yes (1) No (0) D/K
13. Parental Rejection	Yes (1) No (0) D/K

Peer Relationships

Evidence of prosocial friend(s) / prosocial support network?	(REVERSE) Yes (0) No (1) D/K
Evidence of involvement in gangs ?	Yes (1) No (0) D/K
Evidence of involvement with antisocial peer group under 18 years?	Yes (1) No (0) D/K
Evidence of involvement with antisocial peer group over 18years?	Yes (1) No (0) D/K
Described a loner or social isolated?	Yes (1) No (0) D/K

Employment History

Participant

1. regularly employed since age 16years (0)
2. temporary/causal or sporadic work since age 16years (1)
3. rarely worked or never worked or on benefits (2)

Mother's work history

1. regularly employed since age 16years (2)
2. temporary/causal or sporadic work since age 16years (1)
3. rarely worked or never worked or on benefits (0)

Father's work history

1. regularly employed since age 16years (2)
2. temporary/causal or sporadic work since age 16years (1)
3. rarely worked or never worked or on benefits (0)

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