

**UNDERSTANDING AGGRESSION MOTIVATION: THE
ROLE OF DEVELOPMENTAL, AFFECT AND SOCIO-
COGNITIVE FACTORS IN OFFENDERS**

by

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STUDENT DECLARATION

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I declare that no material contained in this thesis has been used in any other submission for an academic award and is solely my own work.

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ABSTRACT

This PhD aimed to understand the constructs of aggression motivation and inhibition among prisoners. The research explored the role of developmental, affect, personality and socio-cognitive factors in aggression, investigating how these factors contributed to motives and inhibitors. This addressed several gaps in our knowledge and understanding of these factors among prisoners. In doing so, it contributed to the proposal of an empirically informed developmental model of aggression motivation and inhibition for prisoners, a model potentially capable of accounting for the theoretical and clinical limitations of existing explanatory models.

Study one involved 206 adult men from a medium secure prison. This study specifically examined the role of aggression (using the Aggression Motivation Questionnaire, AMQ; Ireland, 2007) and offence motivation (with the Offence Motivation Questionnaire, OMQ; Gudjonsson & Sigurdsson, 2004) and affect (using the Multidimensional Anger Inventory, MAI; Sigel, 1989). Contrary to predictions, aggression motivation extended beyond the traditional reactive versus proactive distinction, with four core motivations identified. Further challenging the previous dichotomous distinction were findings that affect was related to all motivations and not just reactive aggression. The structure of offence motivation was consistent with previous research suggesting the validity of such motivation. Relationships found between individual offence and aggression motives supported longstanding notions in the human motivation and rationale choice literature that a limited number of motivations are capable of accounting for the diversity of human behaviour. Study one strengthens the argument to further examine and understand the factors contributing to such aggression motivations, such as cognition or developmental and life course experiences.

Study two recruited 210 adult male prisoners to examine the developmental and socio-cognitive factors underpinning aggression motivations. Confirmation as to the structure of aggression motivation was also evaluated. It was predicted that differing developmental and socio-cognitive factors would relate to each motivation. Analysis supported this and thus further understanding was achieved as to the contribution of these factors. Reformulation of existing developmental models of aggression and the importance of social cognition for adult prisoners were consequently highlighted. However, attempts to confirm the four-factor

solution for aggression motivation identified in Study 1 was not achieved. Exploratory factor analysis supported the extraction of a three-component solution from the AMQ, which was underpinned by ‘protection’, ‘pleasure’ and ‘positive outcomes’ motivations. This raised doubt as to the underlying structure of aggression motivation, which required further examination.

Study three involved 234 prisoners from two separate prisons. All participants were adult men. This study facilitated the further exploration of maladaptive personality and affect regulation strategies in aggression motivation. Evaluation of the components of aggression inhibition was also undertaken. As expected, personality and affect regulation strategies were individually associated with aggression motives and inhibitors. This suggested that these factors had a unique contribution to aggression motivations and inhibitors. A four component structure for aggression inhibition was identified through exploratory factor analysis. The three factor structure for aggression motivation indicated by Study 2 was supported by confirmatory factor analysis. The findings gained from this study were combined with previous studies and influenced the development of the *Applied Integrated Model of Aggression Motivation (AIM-AM)*. This new proposed integrated model of aggression is described in detail in the last Chapter of this thesis.

The current research highlights the importance of considering aggression motivation and inhibition by demonstrating how valuable information to assist our understanding of aggression can be enhanced through their detailed examination. This research points towards a range of underlying factors which motivate and inhibit aggression in prisoners, including personality traits, developmental and life experiences, cognition and affect regulation. This was drawn together in the *AIM-AM*, which remains the first proposed aggression model developed specifically from the study of forensic populations. This applied theoretical model and underpinning research has a range of research and clinical implications for those working with prisoners, such as guiding the psychological assessment and risk evaluations of prisoners and focusing interventions to reduce their likelihood of aggression.

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Chapter 1

SETTING THE SCENE

This thesis explores aggression motivation and inhibition in incarcerated adult male offenders, and examines how these concepts relate to developmental, affect, personality and socio-cognitive factors. Chapter 1 will commence by introducing key issues related to aggression motivation and inhibition, including their definitions and relationships with these factors. Human aggression remains subject to extensive exploration and theoretical reflection. Conceptual difficulties remain despite this, due to varying interpretations as to the nature of aggression, how it is displayed and its function (Krahe, 2013).

Explanations for aggression have shifted from single factor theories (for example, poor affect regulation, Berkowitz, 1993), to integrated models covering multiple factors (Anderson & Bushman, 2002; Ferguson, Rueda, Cruz, Ferguson, Fritz, & Smith, 2008). These models, however, have received limited attention among forensic researchers. Consequently, our understanding of the factors that motivate or inhibit aggression remain tentative in adult male offenders. Given the elevated rates of aggression found in such populations, this lack of research is surprising and supports the need for further investigation (Archer, Ireland, & Power, 2007; Ireland & Murray, 2005; Ireland & Ireland, 2008; Schenk & Fremouw, 2012).

Intent is a fundamental consideration in differentiating aggression from non-aggression (Baron & Richardson, 1994; Ireland, 2011). The *motives* underlying intention are important in understanding the decision to aggress, as they represent the core objectives of the aggressor. Farrington (1993) postulated that any given behaviour (including aggression and delinquency) is driven by its underpinning motivation. According to *motivation theory*, motives are the underlying reasons held by individuals for engaging in and performing a given behaviour (Ajzen, 1991; Reiss, 2004). Motives are said to organise the individual's perception, attention, cognitions and emotions into coherent action (Reiss, 2004). Reiss (2004) argued that even diverse behaviours can have common underlying motives. In terms of aggression, there is increased acceptance that aggression should be described less by its nature and more by its motivation (Anderson & Bushman, 2002; Ireland, 2009; Ireland, 2011).

Traditionally, motivations for aggression were dichotomised into *proactive* and *reactive* (Dodge & Coie, 1987). Other bimodal classifications with differing terms exist (e.g. affective versus instrumental), although essentially make the same distinction. Proactive aggression is described as instrumental, planned and goal driven (Berkowitz, 1993; Ireland, 2011). In contrast, reactive is an uncontrolled form of aggression, which is largely impulsive and driven by emotion. It is thought likely to occur in response to a blocked goal such as achievement of a particular object or social outcome (Ireland, 2011). Recent considerations note how motives can alter over time and contexts, leading to the acknowledgement of the ‘mixed-motive’ aggressor (Gendreau & Archer, 2005; Vitaro & Brendgen, 2005). Others have contended that proactive and reactive aggression motives can coexist in the same individual or in the same act of aggression (Daffern, Howells & Ogloff, 2007; Walters, 2005). These motivational dimensions have value in operationalizing the concept of aggression by providing opportunities for empirical study with the aim of improving our understanding of its multifaceted and multifunctional nature (Raine, Dodge, Loeber, Gatzke-Kopp, Lynam, Reynolds, Stouthamer-Loeber & Liu, 2006).

There is, nevertheless, acknowledgement that not all aggressive intentions or inclinations are behaviourally expressed (Finkel, 2007), particularly when benefits are low (Baumeister & Vohs, 2003) or associated costs of action are high (Ajzen, 1991). Indeed the *inhibition* of aggression can be advantageous in particular circumstances such as when the negative consequences of aggression are high (Farrington, 1993; Ferguson & Dyck, 2012). Chapter 2 will further examine the concept of aggression motivation and inhibition in detail.

Several theories are capable of advancing our understanding of relationships between motivation, inhibition and decisions to aggress or not. They include the *Theory of Planned Behaviour* (TPB: Ajzen, 1991), its precursor the *Theory of Reasoned Action*, (TRA: Ajzen & Fishbein, 1980), and *Social Interactionist Theory* (SIT: Tedeschi & Felson, 1994). SIT contends that aggression is instigated to achieve relevant social goals, which include the control of others, the restoration of justice for perceived wrongs and the protection of social or self-identity. Tedeschi and Felson (1994) argued the decision to aggress is mediated by an expectancy that the desired goal will be reached, by the value attached to the respective goal and by the estimated costs of the behaviour being minimised. SIT provides a useful explanation, therefore, for aggression being motivated by social goals (Baumeister, Smart, & Boden, 1996). There is also emphasis on cognition and motivation in the TPB (Ajzen, 1991),

which describes intention as the amalgamation of the individual's attitudes towards the behaviour, the strength of the subjective norm and the level of perceived behavioural control that may facilitate or inhibit the behaviour. However, empirical application of these decision theories to the study of aggression in forensic samples is currently limited. There are some other limitations of these theories, which are considered further in Chapter 2.

Chapter 3 examines in detail the literature concerning developmental influences and aggression including the limitations of existing pathway models. In brief, the notion that *proactive* aggression is planned (Ajzen, 1991; Tedeschi & Felson, 1994), driven by differences in underlying motives and goals (Ireland, 2009; Raine *et al.*, 2006), would imply that its cognitive, affective and developmental correlates should be distinct for each motivational type. From the first study that considered the proactive-reactive dimension in children (Dodge & Coie, 1987), it was evident that these two types possessed distinct underpinning developmental factors. In the developmental literature, Dodge (1991) proposed a *parallel model* that reactive and proactive aggression originated from differing early socialisation experiences and developed independently from one another. In contrast Vitaro and Brendgen (2005) argued that reactive aggression opens the gateway to proactive aggression over time through reinforcement. Thus the *sequential model* was born.

In Chapters 2 and 4 this thesis will explore the role of affect, cognitions and cognitive schemata in aggression motivation. Research has supported the existence of cognitive mechanisms that resulted in hostile attributions of the behaviour of others, normative beliefs that support aggression (Bowes & McMurrin, 2013; Huesmann & Guerra, 1997) and cognitive schemas that initiated violence (Milner & Webster, 2005; Tremblay & Dozois, 2009). According to Huesmann (1998), cognition and affective states are inextricably linked with one unable to present without the other. It is, therefore, unsurprising that further individual differences in emotion regulation were established. For instance, the reactive type was associated with poor affect regulation and low frustration tolerance (Robertson, Daffern & Bucks, 2012; Vitaro, Brendgen & Tremblay, 2002). Conversely, reduced levels of emotional reactivity were found among proactive aggressors (Hubbard *et al.*, 2002; Robertson *et al.*, 2012). Much of this research, however, utilised child samples and little is known about individual differences in socio-cognitive functioning and affect regulation in adult aggressors, particularly among 'mixed motive' aggressors, or from populations likely to display more extreme behaviour, such as offenders (Ireland & Murray, 2005).

Chapter 5 explores personality as it is thought to play a pivotal role in habitual aggression (Anderson & Bushman, 2002; Ferguson *et al.*, 2008). Beyond traditional aggression theory, *Cognitive Behavioural Theories* of personality (Beck & Freeman, 1990) and the *Integrated Theory of Personality* (Young, Klosko, & Weishaar, 2003) emphasise a role for cognition. Both argue that developmental vulnerability and/or traumatic life experiences can influence personality development and manifest themselves through impaired functioning and biased information processing. Personality is equally related to individuals' propensities to experience emotion (Bettencourt, Talley, Benjamin & Valentine, 2006), the application of self-regulation approaches (Bettencourt *et al.*, 2006), and thought to influence the likelihood of aggression (Caprara, Perugini, & Barbaranelli, 1994). The degree of conceptual 'overlap' between cognition, emotion, personality traits and aggression is therefore evident.

Current theories lack clarity as to why particular personality traits are associated with aggression (Bettencourt *et al.*, 2006). For instance, Anderson and Bushman's (2002) integrated model states that certain traits predispose individuals to increased levels of aggression, but fails to examine this in any more detail. There is also a paucity of research examining the extremes of personality (i.e. maladaptive personality traits) and aggression, and which traits inhibit aggression in which contexts and under which internal conditions. Consequently, valuable information towards enhancing our understanding of the influence of personality traits on aggression and non-aggression is potentially neglected. Given that personality is defined as the essence of being human (Allport, 1937; Mischel, 2013; Ryckman, 2012), further investigation is needed in order to advance the literature and our understanding of its influence on aggression.

A substantial body of research has indicated that maladaptive personality traits, such as those meeting diagnostic thresholds for personality disorder, constitute a risk factor for aggression and future violence amongst forensic (Logan & Johnston, 2010), clinical (Gilbert, Daffern, Talveski & Ogloff, 2013), and community samples (Yang & Coid, 2007). Yet, there is evidence that the relationship between aggression and personality varies both in direction and magnitude; with some personality traits elevating propensity for aggression whilst others seemingly inhibit it (Berman, Fallon, & Coccaro, 1998; Johnson, Cohen, Smailes, Kasen, Oldham, Skodol, & Brook, 2000).

The remaining chapters of this introduction contain discussion and review of relevant

literature regarding aggression motivation and inhibition including their underpinning correlates. The ensuing chapters discuss theories and studies of personality, affect and its regulation, developmental and cognitive factors, which relate to aggression motivation and inhibition. Chapter 6 presents an outline of the aims and predictions for this research. This is finally followed by the studies themselves and discussion of their implications for understanding aggression in forensic populations.

Chapter 2

UNDERSTANDING AGGRESSION MOTIVATION: ITS DEFINITION, THEORIES AND CONCEPTS

2.1 Structure of the chapter

This chapter begins with discussion of the definitional issues associated with aggression. This is followed by a review of common classifications for aggression, such as proactive and reactive and the controversies associated with these. Prominent theories of behavioural motivation and aggression are then described. The chapter ends with a discussion of how our knowledge of aggression could be improved through greater integration of theories across disciplines.

2.2 Aggression definitions and controversies

In the literature little agreement exists when definitions of aggression are considered. Differing interpretations as to the nature of aggression, how it is displayed and its function, have led to difficulties in achieving a universal definition (Ireland, 2011). For instance, Dollard *et al.* (1970) defined aggression as;

“...any sequence of behaviour, the goal-response to which is the injury of the person toward whom it is directed...” (p. 9)

Similarly Berkowitz (1993) defined aggression as any goal-directed behaviour with the intent to cause harm. Buss (1961) suggested that aggressive behaviour is any response that delivers a ‘noxious stimulus’ to another. Bandura (1973) described aggression as any behaviour that violates social norms regardless of the individual’s intent to do so. These examples highlight the variety of definitions and diversity of interpretations regarding aggressive behaviours.

Geen (2001) surmised that to define aggression definitively is challenging as its essential elements, such as intentionality, the target of the behaviour, its outcome and context in which it is displayed, create complexity. Johnson (1972) argued how

“...the most important thing that can be said about defining aggression is that there is

no single kind of behaviour that can be called ‘aggressive’ nor is there any single process which represents aggression” (p. 8).

The lack of definitional clarity represents wider conceptual disagreement amongst existing aggression scholars (Barratt & Slaughter, 1988; Coccaro, Bergeman, Kavoussi, & Seroczynski, 1997). For instance, Tremblay (1991) argued that aggression is too loosely defined; with interchangeable terms such as *anger* and *hostility* being used, whilst others regard these as distinct entities.

Despite this background, a working definition has emerged, which conceptualised aggression as any behaviour (either direct or indirect) towards another that is carried out with a *proximate* intent to cause harm. The perpetrator must believe the behaviour will be harmful and that the target is motivated to avoid it (Baron & Richardson, 1994; Bushman & Anderson, 2001; Ireland, 2011; Tedeschi & Felson, 1994). However, even this definition is problematic as intentions cannot be easily observed, could be denied, are difficult to distinguish from the act itself and it can often be difficult to confirm an aversive effect on the target (Gendreau & Archer, 2005; Ireland, 2011; Loeber & Hay, 1997).

In a review of the literature, Ireland (2011) argued that the continued difficulties in establishing a universally accepted definition must influence a shift from considering the *form* of aggression to a greater focus on its *functions* or *underlying motivations*. The remaining sections of this chapter will consider this statement in greater detail.

2.3 Forms and motivations for aggression

Due to evidence of its relative stability across contexts (Kempes, Matthys, de Vries, & Van Egeland, 2005), some researchers believe that distinct subtypes of aggression are identifiable (Loeber & Hay, 1997). A number of dichotomous distinctions exist in the aggression literature including those that attend to its *form* and those that consider its *function* or *motivation* (Little, Jones, Henrich & Hawley, 2003).

The *direct* versus *indirect* distinction encapsulated the forms of aggressive behaviour most clearly (Archer, 2001; Ireland & Murray, 2005; Ireland, 2011). Direct aggression involves physical contact with an object or another person and is inclusive of behaviours such as hitting, kicking and pushing. Verbal forms of direct aggression include yelling, making

hurtful remarks and threats towards another (Little *et al.*, 2003).

Indirect aggression differs as it is based on the actions of the instigator and can include manipulation of a social environment to hurt the target, damaging its self-esteem or social status, using humour hurtfully or damaging interpersonal relationships through exclusion or malice (Ireland, 2011). Alternative terms, such as relational (Little *et al.*, 2003), covert (Bjorkqvist, Osterman & Lagerspetz, 1994), emotional (Bjorkqvist, 1992), relational-appearing and social manipulation (Crick & Grotpeter, 1995) are also utilized, yet essentially they all describe indirect forms of aggression.

Separate distinctions exist that consider aggression motivation. *Proactive* aggression is characterised by planned behaviours generally thought to be executed without emotion. Arguably, it is closely related to social learning models, which maintain that maladaptive behaviours such as aggression are learnt and reinforced over time by perceived or actual rewards (Ireland, 2009). This is discussed further in the next section. *Reactive* aggression, however, is characterised as an uncontrolled form of aggression, a largely impulsive response driven by emotion and likely to occur in response to a blocked goal (Berkowitz, 1989).

In recent years the *mixed-motive* aggressor has been acknowledged, based on the notion that motivation is a fluid concept and that individuals can present with both forms (i.e. reactive and/or proactive) at different times (Gendreau & Archer, 2005; Raine *et al.*, 2006). Dodge *et al.* (1997) found that proactive and reactive types were highly correlated. Despite evidence that these motives can coexist (see Gendreau & Archer, 2005), several studies neglect the mixed category, focusing on proactive and reactive as two distinct types (Raine *et al.*, 2006).

Advocates of the proactive/reactive dichotomy argue its value lies in operationalizing the concept of aggression, permitting more focused empirical and theoretical exploration (Raine *et al.*, 2006). Chapters 3, 4 and 5 further discuss the validity of the proactive reactive distinction with reference to a number of developmental, cognitive, personality and affective factors and correlates. However, Bushman and Anderson (2001) criticized the distinction on the grounds that it confounds different categories of information processing and facilitates confusion over motives for aggression. They recommend that the distinction be abandoned in favour of a structural model for motivation that considers its likely wider and varying dimensions. They argued that reactive and proactive themes are likely to form only a part of

any such framework of understanding (Bushman & Anderson, 2001). Equally, little is known as to how this motivational distinction relates to those with a history of offending.

Few published studies have directly examined or identified specified motives for aggression. A qualitative study by Olson and Lloyd (2005) examined motives for aggressive behaviour between intimate partners. In their sample of 25 adult women, they found 12 thematic categories of motives namely, restoration of face, threat, self-defence/protection, communication style, family learned pattern, psychological and personality factors, pain of unresolved issues, relationship rule violation, to gain attention/compliance, control and negotiation, to promote comfort or security, protection of partner, and as a result of a drug/alcohol induced state. Olson and Lloyd (2005) emphasised the valuable insight that can be gained through examination of aggression motivation in this detailed manner. However, their sample size was small and limitations on generalizability were recognised.

Graham *et al.* (2013) also examined motives in detail and used a larger sample. They examined motives for aggression in large late-night drinking venues in a Canadian city. Eight hundred and forty four narrative descriptions of aggressive incidents were analysed from over 1,507 bar patrons who engaged in aggressive acts. The study focused on exploring sex differences in aggression. Based on the *Theory of Coercive Action* (Tedeschi & Felson, 1994), which is discussed later in this chapter, they hypothesised that aggression could be quantified via the motives of compliance, grievance, social identity or excitement. Graham *et al.* (2013) found women displaying aggression were more likely to be motivated by compliance and grievance, which primarily stemmed from unwanted sexual advances from men. In contrast, men were more likely to be motivated to aggress by social identity concerns and excitement. Aggressive acts that escalated in severity were motivated by identity or grievance, with identity motivation especially associated with severe acts of aggression. These may, however, be motives unique to the environmental context and setting of this study. A clear limitation of this research was that aggression motivation was inferred from descriptions of incidents rather than elicited directly through self-report. Attributional and researcher biases were thus not directly controlled for. Another limitation was that it was conducted in a single geographical city, which perhaps limits wider generalisation of findings to other cultures or contextual situations.

A further published study to examine aggression motivation among a more extreme population was recently undertaken by Urheim *et al.* (2014). They explored institutional aggression amongst a sample of 28 inpatients at a psychiatric hospital in Norway. Staff evaluation and assessment of patients' motivations following 1,652 incidents of aggression were examined. Using exploratory and confirmatory factor analysis, support was found for a three-factor model that conceptualised aggressive incidents as being irritable, instrumental or defensive in their motivations. Motives for aggression were found to co-occur, which is consistent with the literature concerned with other functional distinctions such as the reactive vs. proactive aggression (Bushman & Anderson, 2001; Ireland, 2009). It was also found that psychopathic personality traits predicted increased levels of institutional aggression. In this study, however, there was a reliance on staff ratings of aggressors' motives as opposed to gathering information from the aggressor. Furthermore, given the absence of information concerning the contextual features of the aggressive incidents examined, it is plausible that Urheim *et al.*'s (2014) three factor model could merely represent a framework for understanding the contextual features of incidents rather than a model of aggressors' intrinsic motivation. Other studies have considered motivation and other variables of interest in aggression such as cognition and personality. These will be evaluated over the next few chapters. Yet, there is generally an absence of research examining aggression motivation and associated factors in offenders. To place subsequent chapters in context, the remaining sections of this chapter explore prominent theories of behavioural motivation and aggression.

2.4 Theories of human aggression

Researchers have proposed and evidenced a variety of perspectives to assist our understanding of aggression. A number of the prominent theories are described and evaluated throughout this thesis. In this chapter, socio-cognitive (Crick & Dodge, 1994) and script (Huesmann, 1986; 1998) theories are first discussed. This is followed by an examination of more recent integrated frameworks, namely Anderson and Bushman's (2002) *General Aggression Model*, and Ferguson *et al.*'s *Catalyst Model of Violence* (2008). Owing to its parallels with perspectives from the behavioural motivation literature, the Theory of Coercive Action (Tedeschi & Felson, 1994) draws this section to an end.

Social cognitive theories of aggression are underpinned by Bandura's (1977) early formulation of learning. Central to this perspective is the premise that individuals make sense of their social worlds through organisation and simplification into cognitive schemata.

Huesmann (1998) described social cognition as the

“...mediating process that connects external situations, internal schemas, and social behaviour in predictable ways” (p.84).

Cognitive schemata, therefore, encompass past memories, acquired rules and expectations and social knowledge that guide behavioural actions (Huesmann, 1998). Huesmann (1988; 1998) and Crick and Dodge (1994) both proposed socio-cognitive models that have contributed greatly to our understanding of aggression by indicating how factors related to aggression integrate with one another.

The Crick and Dodge *Social Information Processing* model (1994, revised from Dodge, 1986) is presented in Figure 2.1. It was originally developed as a model of children’s social adjustment, and was later expanded and applied to aggression. The model describes a sequence of social information processing stages comprising; encoding and interpretation of cues (both internal and external), goal selection, access and selection of responses, and behavioural enactment. Aggressive behaviour was hypothesised to result from schematic bias, deficiencies in information processing, and/or misinterpretation of social cues (Crick & Dodge, 1994).

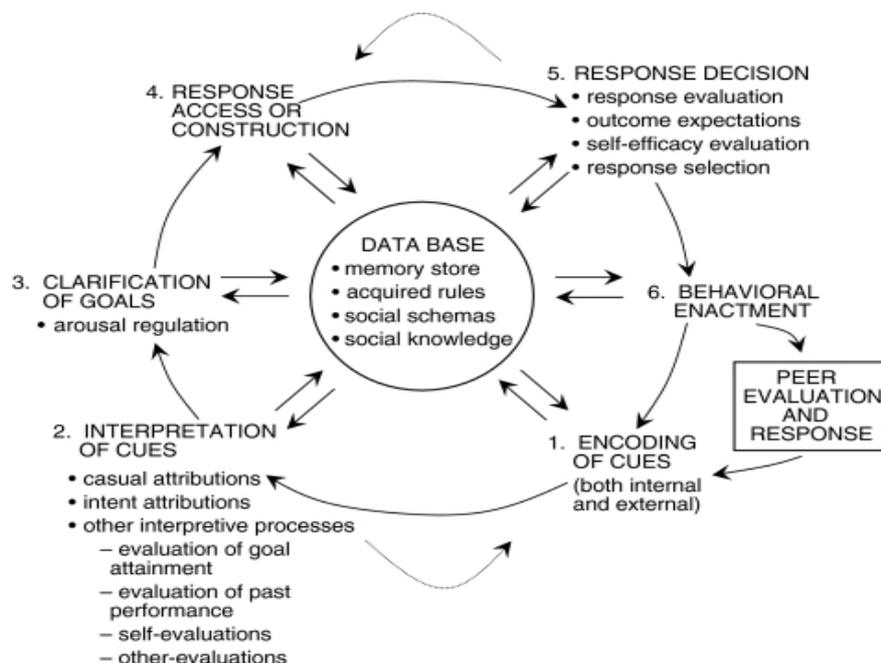


Figure 2.1: Crick and Dodge’s (1994) social information processing model.

At stages one and two, individuals are said to attend selectively to situational and internal cues, encode these cues and then interpret them through personalised cognitive schemata stored in memory. At stage three, the individual selects goals and desired outcomes from the situation, which are then accessed from memory in stage four. If faced with a novel situation, a new response structure is constructed. At stage five an evaluation of possible responses is undertaken with consideration of the individual's resources, ability and consequences. The most perceived positive response is selected and enacted in stage six. Processing through each of these stages was considered highly automatic (Crick & Dodge, 1994).

The model proposed that cognitive schemata originate from biologically inherited capabilities (Lorenz, 1966; Van Goozen, 2005), and are refined through life-course learning and socialisation experiences. The Crick and Dodge's socio-cognitive model (1994) was a revision of an original model (Dodge, 1986) following identification of a number of shortcomings. This included that information was processed in a unidirectional and linear manner. The processing of social information, is however, often cyclical and multi-directional (Crick & Dodge, 1994; Dodge *et al.*, 2002). This resulted in the inclusion of multiple feedback loops in later models. The revised model gave little consideration to the influence of emotion on information processing. This was a limitation accepted by the authors and resulted in the development of a further model termed the *Integrated Model of Emotion Processes and Cognition* (Lemerise & Arsenio, 2000). In addition, Crick and Dodge's socio-cognitive model was not developed as an explanatory framework of social cognition in offending populations and only some of its core elements have been tested in forensic populations to date (Bowes & McMurrin, 2013; Ireland & Murray, 2005; Ireland, 2011).

In contrast to Crick and Dodge (1994), Huesmann's (1998) socio-cognitive model placed greater emphasis on associations between cognition and emotion. He posited two specific aggression-related cognitive schema, namely aggressive scripts and normative beliefs. Aggressive scripts were conceptualised as collections of information and beliefs that function to define situations, guide social information processing and act as a template for behavioural action. Huesmann (1998) believed behavioural scripts were acquired through observational learning (see Bandura, 1973; Mischel, 1999), describing how individuals have many types of scripts stored in memory.

Citing Abelson's work on semantic memory networks (1981), Huesmann (1998) indicated

that the accessibility and activation of aggressive scripts are strengthened through multiple rehearsals resulting in increased association between latent concepts in memory. Semantic memory reflects our general knowledge of concepts gained through acquired experiences. Thus, repeated exposure to predisposing factors induced later aggression through the development, habituation and reinforcement of aggressive cognitive knowledge structures (Huesmann & Miller, 1994; Huesmann, 1998; Huesmann, Moise-Titus, Podolski & Eron, 2003; Huesmann & Taylor, 2006). Certain experiences and environments such as those that promote deprivation, competition, frustration and provocation are most likely to result in habitual aggression (Huesmann, 1988; Ireland & Murray, 2005).

Huesmann's model was the first to propose that individuals acquire specific aggressive behavioural sequences in response to environmental input (Huesmann, 1998; Huesmann & Taylor, 2006; Seager, 2005). In addition to providing a behaviour sequence, it was suggested that aggressive scripts include other forms of salient information such as contextual features and underlying motives (Huesmann, 1998). He specified that innate differences in emotional responsivity and regulation predispose some individuals to display aggression (Guerra, Huesmann, & Spindler, 2003).

The other important cognitive concept incorporated in Huesmann's model (1998) was normative beliefs. This is a stable belief regarding the appropriateness of behaviour, serving to regulate and support aggressive action (Bowes & McMurrin, 2013; Chaux, Arboleda, & Rincon, 2013; Huesmann & Guerra, 1997). Normative beliefs capture perceived social norms, although reflect the individuals' own views and attitudes towards the acceptability of aggression in a given circumstance (Bowes & McMurrin, 2013; Gilbert & Daffern, 2010; Huesmann & Guerra, 1997). Scripts are said to be filtered through normative beliefs and thus have the capacity to activate or inhibit aggressive actions (Huesmann, 1998). The influence of normative beliefs in response evaluation is determined by contextual factors and affective states (Huesmann & Guerra, 1997).

A substantial body of evidence has emerged supporting the premise that automatic socio-cognitive processes are related to aggression. Attributional biases, such as the *hostile attribution bias*, where an individual interprets others' ambiguous behaviour as hostile rather than benign, are well documented in the literature (Epps & Kendall, 1995; Heider, 1958;

Kelley, 1971). Associations between such interpretive biases and aggressive behaviour have been identified primarily in children and adolescents (Bailey & Ostrov, 2008; Connor 2002; Ostrov & Godleski, 2010; Todorov & Bargh, 2002). Serin and Kuriyuchuk (1994) theorised that aggressors are predisposed, as a consequence of social learning, towards hostile attributions particularly when physiologically aroused by negative emotional states. Similar to Huesman (1998) and Crick and Dodge (1994), they contended that frequent erroneous attributions result in habitual aggression.

In summary, both Huesmann's (1998) and Crick and Dodge's (1994) models contend that maladaptive socialisation experiences influence social-cognition. Cognitions limit the processing of certain social information thus contributing towards aggression propensity through hostile attributions and the creation of distortions that further support aggressive actions. A further narrowing of the individuals' repertoire of non-aggressive responses, and/or automisation of behavioural scripts over time are equally implicated in aggression. However, neither model was developed from studies of offenders, comprehensively considers the unique environmental factors where social-cognitive processes may occur (such as prison settings), or has been rigorously tested with forensic samples (Ireland & Murray, 2005).

In comparison with research in general samples, studies concerned with social-cognition inclusive of biased attribution and aggression amongst adults and also with offenders, are more limited (Ireland & Murray, 2005). Nonetheless, the studies that have been undertaken support an association. For example, James and Seager (2006) explored impulsive and hostile cognitive schema in a sample of 40 adult male prisoners. A moderate but positive correlation was found between hostile world attributions and prisoners' historical use of violence. A previous study by Seager (2005) with 50 adult male prisoners also indicated that persistently violent men impulsively responded to hostile world attributions.

Smith and Waterman (2004) conducted another study with 30 detained adult male offenders using traditional cognitive test of attention, named the themed dot probe and visual search tasks. They found evidence of delayed information processing of stimuli amongst violent and aggressive offenders when compared to non-violent or student samples. Yet, owing to the relatively small sample sizes in all these studies, the use of correlational designs (i.e. James & Seager, 2006; Seager, 2005) and failing to control for potentially confounding factors (such as

organic cognitive functioning difficulties or learning deficits in Smith and Waterman's study [2004]), this evidence is far from conclusive. Further research is required to clarify the relationship between cognitive attribution and aggression or associated behaviours in offenders (Bowes & McMurrin, 2013).

Ireland (2001) examined the later stages of social information processing models (i.e. Crick & Dodge, 1994; Huesmann, 1998) in detained groups of women and men offenders (n=406). There was a specific focus on response construction, decision-making, enactment and evaluation phases (see Figure 2.1). Differences were explored between groups for number and nature of solutions-generation in given theft-related bullying scenarios. In all scenarios presented it was found that the bully group significantly favoured aggressive responses. However, no significant differences were found in the number of solutions generated. It was suggested that bullying aggressors favoured responses that were effective past solutions and were thus valued by these offenders. Ireland (2001) also argued that the unique environment of a prison (i.e. threatening, provocative and hierarchical characteristics) could be capable of amplifying socio-cognitive tendencies towards aggression as predicted by information processing models (i.e. Huesmann, 1998).

Early contentions were that individuals have either aggressive or non-aggressive scripts, which in turn influence behavioural patterns (Huesmann & Eron, 1989). This supposition was, however, not supported by the empirical literature. Instead, habitual aggressors were found to have a limited range of non-aggressive scripts. Using data from a previous study (Ireland, 2001), Ireland and Archer (2002) also explored consequence perceptions when responding to prison bullying with aggression. They found offenders most involved in prison bullying perceived more positive than negative consequences of their aggression. Such consequences included their beliefs that aggressive actions gained them additional respect amongst their peers. Ireland and Archer (2002) concluded that their findings supported the existence of a limited range of non-aggressive scripts and the important influences of the environment where social cognition occurs.

A further tenet of script theory as related to aggression is that rehearsal strengthens script accessibility in memory, and thus likelihood of later activation (Huesmann, 1998). Fantasizing about an aggressive action represents a form of mental rehearsal (Gilbert & Daffern, 2010). Evaluation of this branch of research provides opportunity to further examine

the evidence supporting script theory. The link between aggressive fantasy/rumination and aggression amongst children and adults from general samples is also well documented in the literature and links directly with script rehearsal (Smith, Fischer & Watson, 2009). Elevated levels of fantasy and prior rehearsal are generally linked to increased rates of aggression. With forensic samples application of theory and examination of findings are more limited; with a tendency in this case for research to focus on sexual as opposed to non-sexual fantasy among offenders (Laws & O'Donohue, 2008). Indeed, the term fantasy is perhaps misleading when rumination or rehearsal may be a more accurate assertion.

Some research has, however, considered the fantasy-aggression link in forensic and clinical samples. Grisso and colleagues (2000) examined violent ideation in a large scale study of hospitalised psychiatric patients. They found those who reported violent fantasies were more likely to engage in aggression in the community after discharge. Nagtegaal (2008, as cited in Gilbert & Daffern, 2010) conducted a further study examining fantasy and aggressive behaviour in a sample of adult male offenders and a community comparison group. In both samples elevated levels of violence fantasy correlated positively with later habitual aggression.

Nevertheless, the limited research undertaken, coupled with its correlational nature, does limit its generalisation. Further difficulties in discounting influence from other factors also exist. For instance Nagtegaal (2008) described how offenders were more likely to utilise thought suppression, avoidance and self-punishment approaches when attempting to manage violent ideations. Failing to control these potentially confounding factors, which have been separately related to aggression (Gallagher, Lisco, Parrott & Giancola, 2014) is a weakness of this study. In spite of these limitations, the evidence partially supports Huesmann's (1998) theoretical notions of cognitive scripts, rehearsal and automatised resulting in aggressive action. Research has indicated that the cognitive rehearsal of aggressive scripts is strongly associated with normative aggression beliefs (Kelty, Hall & Watt, 2011). Therefore, the evidence concerning normative beliefs and aggression is presented next.

A review of research that has examined normative beliefs and aggression in offenders was recently undertaken by Bowes and McMurrin (2013). Only five studies were identified (including Archer & Haigh, 1997; Milner & Webster, 2005; Palmer & Begum, 2006; Turner & Ireland, 2010; Warnock-Parkes, Gudjonsson, & Walker, 2008) that have directly examined

this relationship in forensic samples. The Bowes and McMurrin (2013) review endorsed the established relationship between normative beliefs and aggressive behaviour found in other samples. However, all of the studies focused on forms of aggression rather than its motivations. Given contentions that cognitive structures include additional information such as behavioural motivation (i.e. Huesmann, 1998), there is need for further consideration of the association between socio-cognitive processes and aggression motivation.

The *Applied Social Information Processing* model (Ireland & Murray, 2005) remains the only socio-cognitive framework developed specifically for forensic samples and aims to enhance our understanding of aggression-related behaviours, namely bullying in secure forensic settings. It draws on prior information processing models (i.e. Dodge & Crick, 1994) and socio-cognitive concepts (i.e. Huesmann, 1998). Yet it differs in that it emphasised a simultaneous rather than sequential socio-cognitive stages where responses generation may occur at the same time as encoding processes. A specific role for the environment, emotions such as anger, and socio-cognitive concepts such as aggressive scripts, normative beliefs and response reinforcement through reward are also incorporated.

Ireland and Murray (2005) argued that the prison setting can encourage the strengthening or altering of existing scripts to more aggressive scripts through socialisation, culture, increased acceptance of the prisoner code (Ireland, 2002; Tittle, 1969) and reinforcement of normative belief systems. The prisoner code refers to the informal rules and values that have developed among prisoners inside prisons' social systems. There is acceptance that aggression in such settings could be an adaptive response to social problems. However, at present, only elements of this model have been empirically tested, and there is perhaps greater focus on bullying as a more specific form of aggression (Ireland, 2011). An integrated model of aggression devised specifically for offenders, which includes socio-cognitive principles as one element, remains absent in the literature.

Socio-cognitive theories of aggression do have their limitations and which need to be acknowledged. In a recent evaluation of socio-cognitive models of aggression, Fergusson and Dyck (2012) identified three core limitations of this theoretical perspective. First, they contested the notion that aggression is mainly learned, by highlighting the wealth of research indicating that genetic, neurobiological and neuroendocrine factors are also related to aggression (see Beaver, 2010). It was argued that learning as the primary mechanism for the

predisposition towards aggression is not always fully supported by the literature (Fergusson & Dyck, 2012).

Second, the position that aggression is mainly cognitive was disputed owing to the limitations and capability of assessment measures used to predict cognitive influences on behaviour in the 'real world' (Gauntlett, 2005). It was argued that focus toward a *combination* of biological and personality influences coupled with environmental stress is a more accurate explanation (Fergusson *et al.*, 2008). Finally, the automaticity of cognitions and behavioural scripts was contested on the basis that some acts of aggression involve considerable forethought and planning, whereas some acts of aggression are functionally useful (Ferguson & Dyck, 2012).

Whilst each theory reviewed thus far offers contributions towards further insight, the current literature trend is towards integrated models that encapsulate an even larger number of associative factors linked to aggression, than socio-cognitive perspectives (i.e. Huesmann, 1998), within a single model. Authors of these theories argued they are most capable of understanding all forms of aggression and account for the limitations of prior theories and frameworks (Anderson & Bushman, 2002). Attention will now turn to these more recent integrated frameworks, namely the *General Aggression Model* (GAM: Anderson & Bushman, 2002; DeWall, Anderson, & Bushman, 2011) and the *Catalyst Model* (Fergusson *et al.*, 2008).

The GAM is an integrated framework created to account for the development and enactment of aggression (Anderson & Bushman, 2002; Anderson & Carnagey, 2004; DeWall & Anderson, 2011). The GAM explicitly integrates cognitive neoassociation (Berkowitz, 2012 [see chapter 4]), social learning (Bandura, 1978), script (Huesmann, 1998), excitation transfer (Zillmann, 1988 [see chapter 4]), and social cognition theories (Crick & Dodge, 1994). The framework is represented diagrammatically in Figure 2.2.

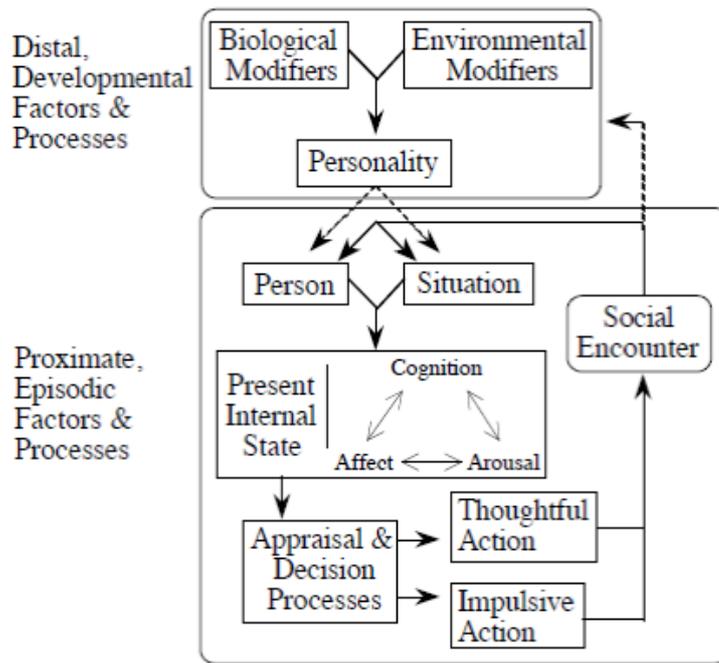


Figure 2.2: GAM (Anderson & Bushman, 2002; Anderson & Carnagey, 2004).

Four distinct stages are indicated; input variables (e.g. distal or developmental differences), present internal state (created by affect, arousal and cognition), appraisal (i.e. interpretation and decision-making), and finally thoughtful or impulsive action. Feedback processes influence future cycles of aggression through reinforcement, causing behavioural escalation (Anderson, Buckley & Carnagey, 2008).

Input variables comprise the unique features of a situation or the person in that situation. According to the GAM, a person's sex, traits and beliefs are all components associated with aggression (Anderson & Bushman, 2002; Anderson & Carnagey, 2004). Cognitions concerning the likely outcomes from a situation, one's self-efficacy, the likely response from others or the act itself, are all thought to play a crucial role in aggression (Anderson & Bushman, 2002). Certain individual personality traits are equally said to predispose an individual to aggress. There is, however, little detail in the model concerning which personality traits are implicated.

The GAM contends that situational factors instigate aggression through their influences on the person's internal state, which is the unification of his/her cognitions, affect and arousal

(Anderson & Bushman, 2002). The GAM indicates that situational cues and aversive conditions prime aggression through linkage of knowledge structures in memory. Research has shown that aversive conditions, such as pain, hot temperatures, loud noises and unpleasant odours increase aggression (Berkowitz 1993). Anderson and Bushman (1997) found that all these situational facilitators have a stronger effect when the person is under the influence of illicit substances or caffeine. This is accepted and incorporated within the GAM.

The next stage of the GAM concerns appraisal and is shown in Figure 2.3.

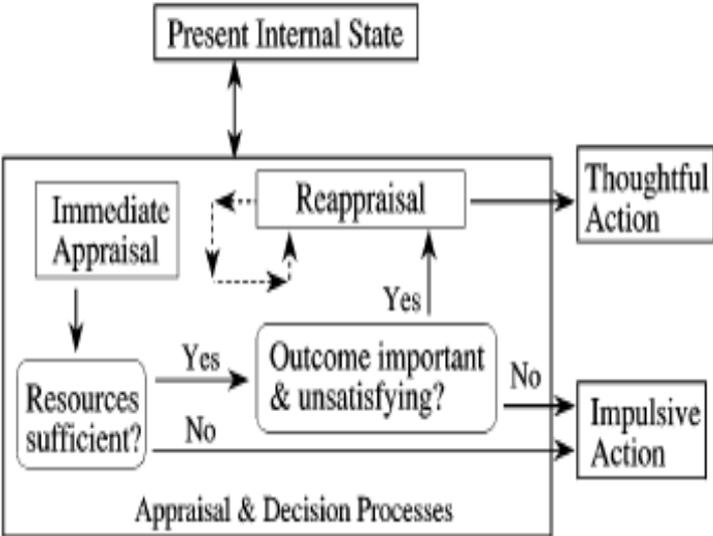


Figure 2.3: GAM: appraisal and decision making processes (Anderson & Bushman, 2002).

This aspect of the model draws heavily on theories of information processing and perception, interpretation, decision making and reasoned action (Crick & Dodge, 1994; Huesmann, 1998). Anderson and Bushman (2002) equally suggested learning is responsible for the creation of aggressive knowledge structures, which include normative beliefs, behavioural scripts and affective states. They indicated that such cognitive structures become automatized with use over time and guide situational interpretation toward aggression. GAM contends that activated behaviour scripts are filtered through normative beliefs that perceive aggression to be a desired and appropriate response (Anderson & Bushman, 2002). At the last stage GAM distinguishes between impulsive and thoughtful aggression on the basis of the degree of appraisal/reappraisal given to input variables and one’s internal state.

The GAM has been criticised on a number of levels. The recent critique of Ferguson and

Dyck (2012) towards socio-cognitive theories extends also to the GAM due to the significance placed upon automatic cognitions, appraisal and behavioural scripts in the model. Ferguson and Dyck (2012) expressed concern at the disproportionate attention paid to cognitive knowledge structures (inclusive of normative beliefs, schemata, and behavioural scripts) to the detriment of environmental, personal and biological perspectives. Further cited limitations target the assumption of aggression as being a learned behaviour, and also noting how assessment measures have poor ecological validity (Fergusson & Dyck, 2012).

Additional shortcomings of the GAM include its lack of depth and explanatory detail in particular areas. For instance, there is limited information as to which personality traits enhance aggression propensity, or indeed how aggressive behaviours are inhibited, as it is long been recognised that not all aggression inclinations result in aggression (Averill, 1983; Finkel, 2007). Furthermore, the GAM was devised and remains predominately applied towards understanding the association between violent video games and aggression by younger samples (Anderson & Bushman, 2002). Examination of GAM's empirical validity with clinical and forensic samples and toward an understanding of general aggression, as opposed to establishing links between video games and violence, remains limited with only three published peer-reviewed studies currently in existence (i.e DeLisi *et al.*, 2013; Gilbert *et al.*, 2013; Hosie *et al.*, 2014). For example, DeLisi *et al.* (2013) explored the applicability of concepts within GAM, such as cognitions and environmental exposure to violence (via violent video games), to a sample of 227 male and female juvenile offenders. Using regression analyses, they found that significant predictors of antisocial behaviour included; frequency of violent video game play, positive attitudes towards violence, and psychopathic personality traits. They concluded this evidence supported application of the GAM to a clinical sample. However, given this study focused on delinquency rather than aggression *per se*, the applicability of GAM towards understanding aggression in forensic samples remains unclear, as aggression and delinquency can be entirely distinct behavioural concepts (Ireland, 2009).

In a study with adult offenders, Gilbert *et al.* (2013) examined the role of aggression-related knowledge structures (namely, beliefs, behavioural scripts and cognitive schemata) as emphasised by the GAM. In a mixed sample of 87 adults (90% men 10% women) serving community sentences, they found all GAM variables positively related to self-reported acts of aggression. In particular, associations were found between cognitive knowledge structures and trait anger; with elevated levels of anger correlating positively with higher scores on

cognitions supportive of aggression. The frequency of script rehearsal through aggression fantasy was also examined and found to be related to aggressive action.

Gilbert *et al.*, (2013) argued their findings supported the application of GAM to forensic populations and suggested that its use in practice be increased owing to its theoretically sound underpinning. However, the generalisability of these findings to wider forensic populations can only remain tentative as the sample size was small and only included offenders serving community sentences. The fact that they were serving community sentences compared with custodial sentences could reflect inherent differences in their psychopathology. It is perhaps likely that more deviant or habitually aggressive offenders would be held in secure conditions.

The final study to date to examine GAM variables and aggression in forensic samples was undertaken by Hosie *et al.* (2014). They examined the relationships between personality and aggression using GAM (Anderson & Bushman [2002]) and five-factor model of personality traits (FFM: Costa & McCrae [1992]). The FFM describes the dimensions of human personality as relating to five primary traits namely, openness, conscientiousness, extraversion, agreeableness and neuroticism (see Chapter 5). Fifty-five adult male offenders in the community were evaluated for their frequency of aggression, association with script rehearsal, cognitions supportive of aggression, personality traits and trait anger. Hosie *et al.* (2014) found certain personality traits were related to aggression. However, in hierarchical regression analyses stronger associations were identified between cognitive and affective variables than any personality traits. They argued that this strengthens the evidence supporting socio-cognitive perspectives on aggression as opposed to other competing frameworks, such as those focused on personality (e.g. Fergusson, *et al.*, 2008; Freedman, 2002; Olson, 2004). Hosie *et al.* (2014) further argued that this study supports application of the GAM to aggressive forensic populations. However, similar to the previous study (Gilbert *et al.*, 2013), this study's conclusions are equally vulnerable to concerns over the number and nature of the sample from which they seek to generalise to wider forensic populations.

In sum, the GAM has furthered the aggression literature through its integration and widening of previous aggression theories. Nevertheless, its applicability as a framework for understanding all forms of aggression and in populations such as offenders is yet to be firmly established. As described, there is some emerging evidence supporting its application to forensic populations. However, their limited number and identified limitations in existing

studies cast doubt. Caution should, therefore, be utilized in the automatic adoption of models and frameworks, such as the GAM, from generalized to extreme populations such as offenders (Ireland & Ireland, 2011). Considered next is the Catalysis Model (Ferguson *et al.*, 2008), which is a competing integrated aggression framework, as this also describes the contribution of a wide number of factors linked to aggression, although with increased attention to predisposing and personality factors compared with the GAM.

Ferguson *et al.* (2008) described aggression as the product of predisposing evolutionary/biological, personality and environmental forces. They argued that antisocial and aggressive prone personalities develop from interactions between genetic predispositions and environmental moderators, such as exposure to familial violence or early life abuse experiences. Ferguson *et al.* (2008) emphasised that this mostly biological pathway results in an aggressive childhood temperament and through maturation develops into an aggressive adult personality. Environmental conditions are viewed as *catalysts* for aggression rather than causal factors. In other words, contextual circumstances or environmental strains supply the motives, which then activate an existing biological propensity towards aggressive action. This model is presented diagrammatically in Figure 2.4.

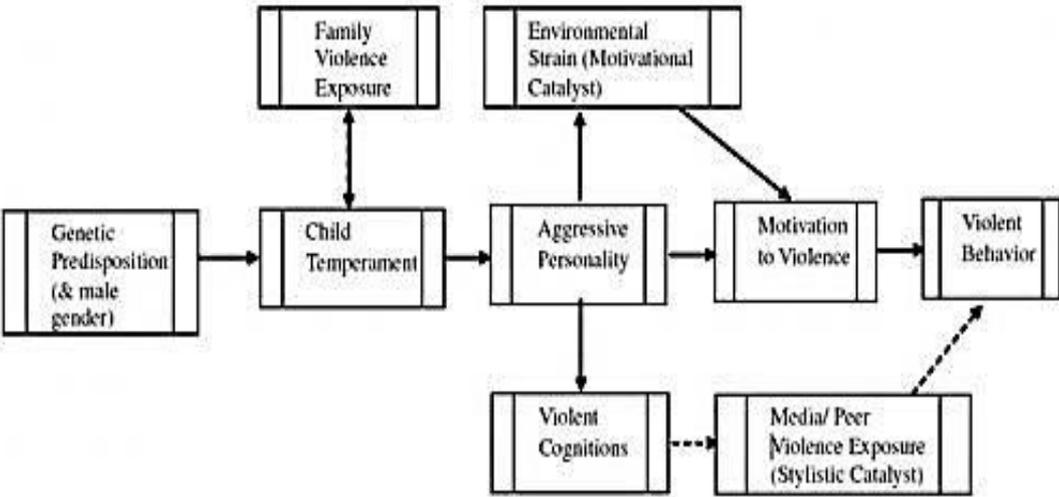


Figure 2.4: Catalyst model of aggression (Ferguson *et al.*, 2008).

According to the Catalyst Model (Fergusson *et al.*, 2008) habitual aggressors have increased developmental vulnerabilities that require less environmental/contextual strain to instigate aggressive action. All individuals are supposed to exhibit the propensity for aggression, yet

the degree of instigating the environmental strain required is hypothesised to account for individual differences.

Initial testing of the Catalyst Model directly compared its explanatory capability with the GAM. Ferguson *et al.* (2008) conducted two studies with undergraduate students examining relationships between exposure to violent video games and aggressive behaviour both in laboratory and real life settings. Study one had 101 participants and was undertaken in a laboratory setting. The procedure involved exposure to a violent or non-violent video game in line with a standardised procedure (see Anderson & Dill, 2000). Participants also completed self-report measures that considered trait aggression, historic game play and other demographic details. Using analysis of covariance between participant groups (for instance, violent vs. non-violent game exposure), they found that exposure to violence in the video games had no short or long term effect on aggression. It was concluded that these findings were contrary to the GAM's predictions (Anderson & Bushman, 2002) that exposure results in modelling and the automisation of aggressive knowledge structures (Ferguson *et al.*, 2008).

Limitations in generalising findings from laboratory-based studies of aggression (Tedeschi & Quigley, 1996) to other settings influenced the completion of study two (Ferguson *et al.*, 2008). This study involved 428 undergraduate students and examined whether exposure to aggression had value in predicting later criminality after controlling for the effects of known predictors, such as exposure to family violence (Ferguson *et al.*, 2008). Results indicated that trait aggression, family violence and being male were the best predictors of violent crime when compared with exposure to violent video games. Use of structural equation modelling, a statistical technique to examine the fit of competing models to a given data set, revealed that the Catalyst Model had higher explanatory power and goodness of fit when compared with the GAM.

A more recent study by Ferguson, Ivory, and Beaver (2013) examined the capability of the Catalyst Model in the prediction of adult general criminality. This research used longitudinal information from a national data set (Add Health, Resnick *et al.*, 1997). Heritability analyses were conducted separately for men and women. Results indicated that genetic heritability accounted for 58% of the variance in later adult criminality in women (95% confidence interval between 52% to 63%) and 60% in men (95% confidence interval between 55% to 65%). Social and non-genetic factors accounted for remaining variances. Further regression

analyses indicated significant predictors of later adult criminality included male sex, adolescent delinquency, heritability factors and intelligence. Social factors and non-genetic variables, such as maternal warmth, school difficulties and exposure to media violence were not associated with adults arrest histories. Ferguson *et al.* (2013) concluded these results fitted reasonably well with the expectations set forth by the Catalyst Model. However, no detail was noted as to the nature of the convictions or sentences received by this study's sample, which is a limitation. Furthermore, in the context of understanding aggressive behaviour in offenders, this study is somewhat limited, given it focused on general criminality with its nature not clearly noted.

Despite the positive outcomes from empirical investigations to date, the Catalyst Model remains in its infancy when compared with the GAM, and further independent testing of its underlying notions is yet to be fully completed. Its predictive utility in understanding aggression in non-student samples also remains tentative with only one study of this nature undertaken to date (i.e. Ferguson *et al.*, 2013).

Having examined a number of aggression theories and integrated frameworks, the remaining sections of this chapter will consider the literature relating to behavioural motivation, decision-making and reasoned action. As indicated in the preceding sections, these are equally relevant factors in aggression. Following this, a return to discussions of aggression as an instrumental behaviour will bring this chapter to a close.

2.5 Aggression, its link with motivation, decision-making and reasoned action

The study of motivation is concerned with addressing *why* a particular movement or action is initiated, persists over time, or is inhibited, and the choices made as part of such processes (Weiner, 1992). A number of alternative terms, such as underlying *intentions*, *desires* or *functions* (Gilbert *et al.*, 2013; Matson, Tureck, & Rieske, 2012), are used in the literature and yet all have comparable meanings.

Reiss (2004) contended that motives organise the individual's perception, attention, cognitions, emotions and behaviours, into coherent action. According to Mook (1987) the study of behavioural motivation is predominately concerned with

“...the search for the principles that will help us understand why people and animals

initiate, choose and persist with specific actions in specific circumstances” (p. 20).

Two metaphors resulted in alternative types of motivation theories and the subsequent growth in their study (Weiner, 1994). Cartesian dualism (Descartes [1596-1650], as cited in Weiner, 1994) described the coexistence of the mind and body. This resulted in considerations of humans as *godlike*, and their motivation an outcome of logic, knowledge and rational choice. The *machine* metaphor considers human motivation to be automatic and driven by unconscious forces or habit. Motivation theorists have accepted and incorporated these principal metaphors to varying degrees (Weiner, 1994). For instance, psychoanalytic, ethological, socio-biological, drive and Gestalt theories of motivation were guided by the machine comparison. Expectancy-value theories are associated with the godlike metaphor. It is beyond the scope of this thesis to review all theories of human motivation. The core focus of this thesis concerns how concepts such as predisposing developmental factors, socio-cognitive processes and affective states are integrated and linked to aggression motivation. This has parallels to expectancy-value theories of behavioural motivation that are examined next.

Expectancy-value theorists, such as Julian Rotter (1954), contended that our actions in any given context are motivated by the perceived likelihood of achieving a desired outcome, the subjective value of this for the individual, any associative costs and the influence of prior outcomes through reinforcement. Rotter (1954) argued

“...the potential occurrence of a behaviour that leads to the satisfaction of some need is a function of the expectancies that these behaviours will lead to these reinforcements and the strength or value of these reinforcements” (p.110).

In his theory of motivation (1954), Rotter noted four key notions including; behavioural potential, expectancy, reinforcement and the psychological situation. Behavioural action is determined by our knowledge and selection of the best course of action (Rotter, Chance & Phares, 1972). Expectancy is argued to be determined by individuals' past histories and outcomes from comparable situations (Rotter, 1954). It is this expectancy that results in motivating the individual towards a desired action (Rotter, Chance & Phares, 1972; Weiner, 1994).

Merton (1957, as cited in Weiner, 1994) made one of the first attempts to apply expectancy-value principles to understanding maladaptive behaviour. Merton argued that the discrepancy between actual and expected values causes the individual to adopt deviant means, such as crime and aggression, to attain his/her desires. This view is broadly supported by a number of empirical studies, such as the Cambridge Study, which found that individuals with fewer opportunities for social mobility are most likely to engage in crime (Farrington, 1990; 1995). The Cambridge Study is discussed further in Chapter 3.

A comparable perspective to expectancy value from the criminological literature is *Rational Choice Theory* (Clarke & Cornish, 1985). *Rational Choice Theorists* describe how behaviours are driven by the outcome of conscious decision-making regarding the positive and negative utility from an action. They consider that behavioural choices are instigated by the desire to maximise gain and are conversely inhibited by perceptions of their associative costs. Rational Choice Theory is focused on the opportunity to offend and how an individual's choices are structured by contextual variables. This involves considering both personal factors, such as a need for financial gain, revenge, or entertainment, and situational factors such as the target/victim's vulnerability and the presence of significant others (Matthews & Agnew, 2008; Siegel & McCormick, 2006).

The capability of rational choice/decision theories in assisting our understanding of aggressive acts is apparent from its application to a variety of offences including aggression and violence (Beauregard & Leclerc, 2012, Rorie, Rinfret & Pautz, 2015; Siegel & McCormick, 2006). Its principles underpin many situational and individual crime prevention approaches, such as increasing the likelihood of apprehension, deterrence through lengthy sanction and enhanced surveillance (see Cornish & Clarke, 2014). In support of its theoretical premise, Matsueda *et al.* (2006) examined its application in a longitudinal study of 1,528 offending youth. They found that acts of violence conformed to a rational choice model with factors associated with perceived risk of arrest, subjective 'psychic rewards'¹ such as, excitement and social status, and perceived opportunity for action all of which were important elements in aggressive actions.

The research of Wright *et al.* (2006) found less support for the applicability of Rational Choice Theory to violent offending. They conducted detailed interviews with 27 adult

¹ Terms used by the authors.

offenders sentenced for robbery and found limited evidence of consideration or evaluation of alternative courses of action. Rather behaviours were found to be motivated by desperation, as a means of maintaining a particular lifestyle and as a consequence of immediate gratification driven by impulse.

In another study Exum (2002) evaluated associations between anger, alcohol and aggressive decision-making amongst 84 male students. The researcher experimentally manipulated conditions by providing alcohol and provocation (to evoke anger arousal) to certain identified groups. Participants then read a 'bar fight' scenario and completed a series of measures that examined their hypothetical intentions, likely response, and perceived consequences of their actions if faced with the scenario. Results indicated that alcohol and anger correlated with aggressive intentions, although the perceived costs and benefits did not. The author concluded that this questioned the robustness of the rational choice model as applied to aggression. However, the experimental nature of this study does question its validity outside of this setting. The use of a composite measure of aggression² with participants responding to a series of individual questions relating to hypothetical intentions, perceptions, and responses is also a questionable methodology with limits to its clinical application (Lafree, 2007). Nonetheless, this is the only study to date to have directly applied Rational Choice Theory in understanding aggression as opposed to general delinquency. Examination of the rational choice perspectives and aggression in forensic populations is yet to be fully embraced in the literature.

Critics of rational choice principles argue that the dichotomy of evaluating benefits against costs simplifies the complex nature of human behaviour and its motivations (Shover, 1991; Wright & Decker, 1994). Another criticism often cited is that behavioural decisions are embedded in socio-cultural contexts that are valued by the perpetrator. It is argued that this is deficient in rational choice explanations (Wright *et al.*, 2006). A final criticism is that decision/rational choice frameworks experience difficulty in explaining irrational behaviours that show no signs of conscious planning (Lanier & Henry, 2010). However, this notion was disputed by Siegel and McCormick (2006) who argued that even acts that appear irrational involve a degree of calculation regarding the risks and rewards of actions, which is consistent with the principles of Rational Choice Theory. This was supported by others who contend that

² Composite refers to a measure of a variables (i.e. aggression) through multiple items (Babbie, 2012).

aggressive and violent behaviours and events involve a substantial degree of rationality (Sommers & Baskin, 1993).

A comparable theory to the rational choice perspective, yet one with greater potential of application to aggression, is the *Theory of Planned Behaviour* ([TPB] Ajzen, 1991; and its precursor the *Theory of Reasoned Action*, Ajzen & Fishbein, 1980). TPB makes a clear association between reasoned decision-making, motivations/intentions and behaviour. According to this theory, behaviour is goal-orientated, driven by a deliberative process, and its proximate cause is the underlying intention to perform that behaviour. Therefore, if an individual evaluates his or her intended behaviour as positive, he or she perceives to have control over outcomes, and believes significant others desire it to be performed (referred to as the subjective norm), this raises intention and increases the likelihood that the behaviour is enacted (Ajzen, 1991; Ajzen & Fishbein, 2005). The important role of cognitive appraisal and social information processing in this theory has parallels to socio-cognitive models of aggression reviewed in the preceding section. The TPB is presented diagrammatically in figure 2.5.

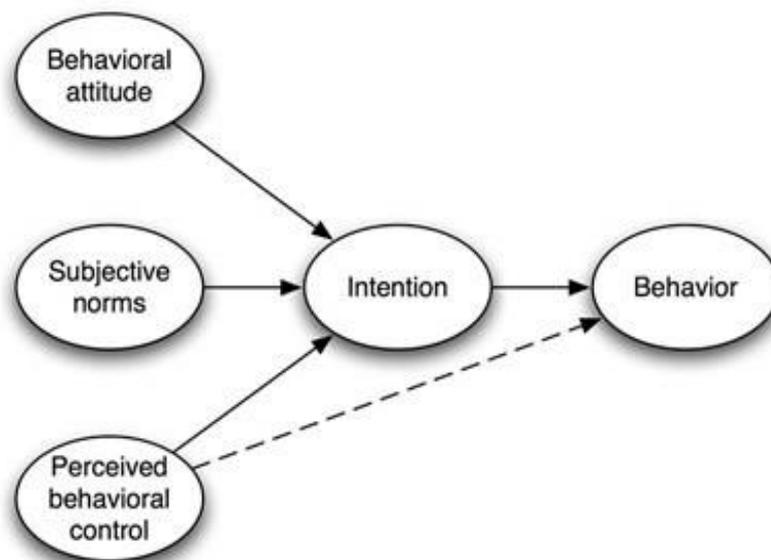


Figure 2.5: Theory of Planned Behaviour (Ajzen, 1991)

Ajzen (1991) used the term intentions as opposed to motivation, yet described these as the factors that influence and instigate action. An individual's attitudes are only one of the determinants of intention. Subjective norms (i.e., the perceived social pressure to perform a given behaviour) and perceived behavioural control (i.e., the perceived ease or difficulty of

performing the given behaviour) are also hypothesized to influence one's behavioural intention. At this juncture, it is also perhaps important to conceptualise both the similarities and differences between Ajzen and Fishbein's (2005) use of the subjective norm and that of Huesmann's normative beliefs (Huesmann & Guerra, 1997) described earlier. A clear similarity is that they both emphasise the central role of cognition in behaviour including its interrelationship with other concepts such as information-processing or contextual factors linked to action. With regard to their difference, Huesmann's (1998) normative beliefs concern the individual's views towards the acceptability of behaviour. Conversely Ajzen (1991) used the term to reflect an individual's perception of the social pressure to perform or not perform a given behaviour.

In support of TPB's theoretical assumptions, a high degree of correlation between beliefs, subjective norms, intentions and outcome behaviours has been confirmed in many studies (Albarracin, Fishbein, Johnson, & Muellereile, 2001; Conner, Kirk, Cade, & Barrett, 2003; Sheppard, Hartwick, & Warshaw, 1988). TPB has consequently been applied as a conceptual behavioural framework across a variety of disciplines and diverse behaviours (Baker & White, 2010; Conner *et al.*, 2003; Hansen, 2008; March & Woodside, 2005). Meta-analytical reviews of TPB applications (Armitage & Connor, 2001; Godin & Kok, 1996) found on average 41% of the variance was explained by motives/intentions and 34% of the variance in behavioural actions. This further supports its validity as a model that could enhance our understanding of a variety of behaviours.

Limited research has been devoted to examining directly the TPB in relation to aggression (Richetin, Richardson & Boykin, 2010). Even fewer studies have applied the TPB to understanding aggression in prisoners. This is despite identified association between TPB constructs and aggressive behaviour. For instance, Richetin *et al.* (2010) found that negative attitudes influenced aggressive intentions in a community sample of adolescent aggressors. Roberto *et al.* (2003) also examined adolescents and in particular acts of verbal and physical aggression. They found young people's intentions significantly predicted aggressive behaviours. Attitudes and subjective norms were found to be related to verbal aggression, whereas only attitude was related to physical aggression.

In a detailed review of this literature, Perugini and Bagozzi (2004) identified four key areas of potential improvement to the TPB (i.e. automatic, affect, motivational process, and means-end

analyses). In particular there was more limited consideration of the role of emotion in the TPB (Ajzen, 1991), which is argued is one of its central limitations given the close relationship between cognition and affect (Perugini & Conner, 2000). To address these areas of development Perugini and Conner (2000) introduced the Model of Goal directed Behaviour (MGB), which is presented in Figure 2.6.

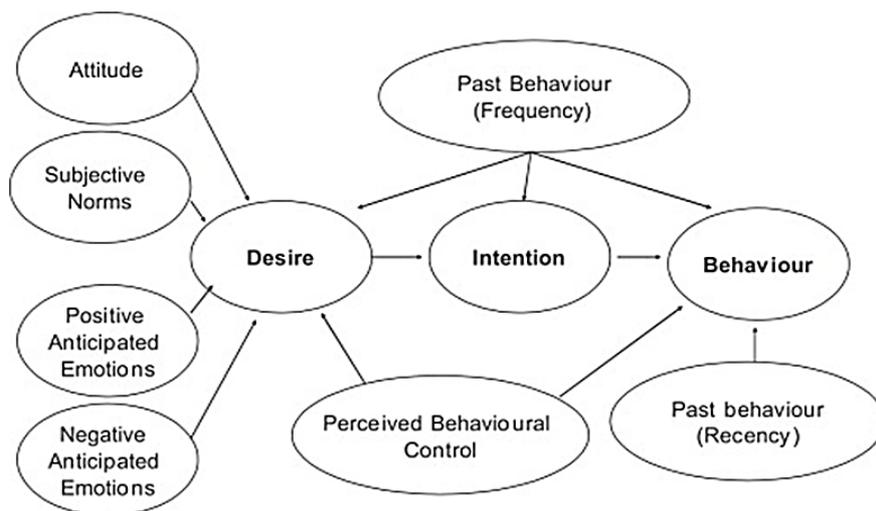


Figure 2.6: Model of Goal-directed Behaviour (Perugini & Bagozzi, 2004; Perugini & Conner, 2000).

According to the MGB, behavioural desire symbolises the motivational state of mind in which appraisals and reasons to act are reconciled (Perugini & Bagozzi, 2004). Perugini and Bagozzi (2004) stated how

“...the motivational content in decision-making is constituted by the desire to perform a certain behaviour, and desire energizes intentions and motivation” (p.11).

In keeping with the tradition of decision theory, the MGB described the performance of a behaviour as primarily motivated by its desire to perform it. This motivational state is assumed to reflect the effects of attitudes, subjective norms, perceived behavioural control and emotion (Perugini & Bagozzi, 2004; Richetin, Perugini, Adjali, & Hurling, 2008). Leone, Perugini and Ercolani (2004) tested the construct validity of the MGB and compared it directly with the TPB. This study explored the use of statistical software in 102 students. Structural equation modelling indicated that the MGB accounted for a greater proportion of

the total variance in intentions and behaviour (13% and 10% more respectively) than the TPB.

To date only one published study has directly applied the MGB to aggression. Richetin, Richardson and Boykin (2011) tested its ability to predict verbal aggressive behaviour in a sample of 287 adult men and women. In keeping with the suppositions of the MGB, they found that intention, desire, perceived behavioural control and positive anticipated emotions significantly predicted acts of verbal aggression. As predicted, perceived negative affect increased one's desire to be verbally aggressive. However, contrary to the MGB, and individual's attitudes and subjective norms were not significant predictors of desire. Attitudes towards aggression were a significant positive predictor of increased intentions towards aggression.

Richetin *et al.* (2011) argued their findings tentatively support the MGB as a framework for understanding. Yet, they acknowledged replication and further exploration are required. Indeed, one MGB element not considered by their study was the individual's past behaviour, which others argue is salient in predicting future intentions and desires to repeat actions (Oullette & Wood, 1998). In spite of this, the authors suggested their findings supported the view of aggression as a goal-directed and reasoned behaviour driven by underlying motives and intentions. This also echoes the writings of Felson and Tedeschi (1993) who have developed a rational choice theory of aggression.

Finally, it is worth considering the *Theory of Coercive Action* (Felson & Tedeschi, 1993; Tedeschi & Felson, 1994) in any discussion of aggression and motivation. Aggression, referred to as coercive actions by Felson & Tedeschi (1993), is considered to result from a decision process made by the perpetrator of this behaviour to achieve relevant social goals. Felson and Tedeschi (1993) define coercive actions as any act undertaken with intent in order to harm another person and gaining their compliance.

This social interactionist perspective argues that aggression always serves a purpose. That is, even reactive, expressive or emotionally driven aggression has an instrumental goal, such as the release of emotional arousal or the satisfaction of having a grievance recognised (Eisner, 2009; Felson, 2005). Felson and Tedeschi's (1994) preference of the term *coercive action*, rather than *aggression*, centered on their desire to bridge voids and segregation of knowledge and understanding across disciplines. According to this theory there are three types of

coercive actions: threats, punishments and bodily force. These are not to be confused with the three main goals of coercive actions (i.e. to gain compliance, to restore justice and to assert or defend identities), which will be described shortly. Threats were dichotomised into contingent and non-contingent and could be subtle or explicit. Felson and Tedeschi (1993) defined punishment as an action performed with intent to harm another. This is consistent with the working definition of aggression discussed in the preceding section of this chapter. Bodily force encompassed the use of physical contact to compel or constrain others' behaviours.

Three major social goals were differentiated as the motivational underpinnings of coercive action. They include: controlling others, to restore justice for perceived wrongs, and to assert or protect social/self-identity. The decision to aggress is mediated by the expectancy that the goal will be reached, the value of the respective goal and the estimated costs of the behaviour. Thus, rational decision-making is clearly a fundamental principle of the theory of coercive action (Tedeschi & Felson, 1994). Graham *et al.* (2013) argued that this theoretical framework provides the most useful taxonomy for understanding aggression motivation in naturally occurring settings. However, no systematic research has focused on the motivations for aggression in general or among more extreme samples, such as prisoners (Graham *et al.*, 2013).

2.6 Concluding comments

This chapter has highlighted the fact that definitional disputes and uncertainties remain regarding what constitutes aggression and its varying forms. The literature emphasises some key elements for differentiating aggression from non-aggression, in particular intent, harmful actions and the desire to avoid this (Baron & Richardson, 1994). However, even definitions that attend to these elements remain problematic (Ireland, 2008; 2011). Given this, it is unsurprising that disagreements also remain in terms of how best to conceptualise the *functions* or *motivations* of aggression.

The most well known distinction of motivation is made between reactive and proactive. That said, increased focus on typologies of form rather than motivation have arguably limited our understanding. Empirical examination of aggression motivation in either general or forensic populations remains in its infancy despite clear recommendation for its greater attention (Anderson & Bushman, 2002; Ireland, 2008; 2011; Raine *et al.* 2006). A large portion of the existing aggression research was also conducted with child and community samples, again

with a focus on form rather than on motivation. There remains little empirical study on aggression motivation and inhibition amongst populations where aggression is considered more elevated, such as forensic populations. Thus, it appears that a clearer understanding of aggression motivation and inhibition in adults and offenders and how these relate to other psychological concepts, is required.

Whilst separate theories exist that consider general aggression (Anderson & Bushman, 2002), reasoned action (Ajzen, 1991) and human motivation (Rotter, 1954), it is plausible that our understanding of human behaviour could be enhanced through greater theoretical integration, a worthy observation made by researchers from another discipline (Steel & Konig, 2006). A variety of multifaceted integrated models are prominent in the aggression literature (i.e. GAM, Anderson & Bushman, 2001; Catalyst Model, Ferguson *et al.* 2008). However, many of these were not developed from studying more extreme populations such as offenders. Equally empirical testing of the applicability of these generic models to forensic populations remains limited with only a few published studies undertaken (i.e. Gilbert *et al.*, 2013). Therefore, concerns must be acknowledged and caution exercised with the automatic adoption of general models to more specialist populations, such as offenders, without their significant testing or consideration as to whether an alternative explanatory framework is more suitable (Ireland & Murray, 2005; Ireland & Ireland, 2011).

There is yet to be an integrated model of aggression published that was developed specifically from empirical study of offenders. Equally, nor has there been an integrated model to emphasise equally both the *form* and *motivation* of aggression. This PhD thesis aims to address this clear gap in the literature through development of an integrated model of aggression for future research. Other prominent concepts and considerations for aggression such as affect regulation, developmental and individual differences, have also yet to be fully examined among adult offenders, which is a further objective of this thesis. The next chapter, therefore, discusses research and theories in relation to developmental differences in aggression.

Chapter 3

DEVELOPMENTAL DIFFERENCES IN AGGRESSION MOTIVATION

3.1 Structure of the chapter

This chapter examines the known developmental factors that influence aggression. Important results from longitudinal studies that have examined aggression and delinquency across the lifespan are reviewed due to the crossover present in the studies that have examined these developmental factors. Some developmental perspectives concerned with the origins of and pathways to aggression, namely the *parallel development* (Dodge, 1991), and *sequential development* (Vitaro & Brendgen, 2005) models are discussed as part of this. Consideration is also given to *attachment* (Bowlby, 1984) as a specific developmental factor and its association with aggressive behaviour. The controversies and limitations within this literature are incorporated. This review concludes with discussion of areas that require investigation in adult forensic samples.

3.2 Developmental trajectories and identified risk factors for aggression

To enhance understanding of the development and trajectory of aggression and other anti-social behaviours across the life span, a number of longitudinal studies have been undertaken. One of the longest running longitudinal studies of aggression, the Columbia County Longitudinal Study, was pioneered by Leonard Eron (1920-2007) and commenced in 1960 with 856 children. One of its clearest findings is that early toddler and childhood aggression (prior to 8 years old) predicted later aggressive and antisocial behaviour. Indeed, a positive correlation of 0.50 between past and future aggressive behaviours was found for men, and a moderate positive correlation of 0.34 for women (Eron *et al.*, 1971). This relationship was repeated across studies and continents (e.g. Caspi & Moffitt, 1991; Farrington, 1994; Loeber *et al.*, 2008; Reef, Diamantopoulou, van Meurs, Verhulst & Ende, 2011). Such findings emphasise the need to examine developmental factors due to their influences on future aggression (Ashmore & Shuker, 2014; Ireland, 2009, 2011).

Not all highly aggressive children continue, however, with their aggressive and antisocial behaviour beyond childhood or early adolescence (Huesmann, Eron & Dubow, 2003; Moffitt, 1993). Usually referred to as the 'age-curve', research has indicated a sharp incline in aggression during childhood, peaking during the teenage years, and then declining steadily

thereafter (Farrington, 1986). Evidence of desistance from aggression over time has also been found (Broidy *et al.*, 2003).

Building on this, the Dunedin study in New Zealand followed a sample of 1,000 individuals from their birth in 1972 to the present day (Moffitt, 1993, 2007). Moffitt concluded from this that two types of aggressors exist (*life-course persistent* and *adolescent limited*), each with distinct developmental pathways. The life-course persistent aggressor presented with aggression as a stable characteristic of his/her functioning across the life-span. The adolescent limited aggressor displays aggression that was situational and was said to peak during adolescence and desist quickly in adulthood. Social learning from antisocial role models was considered crucial to the emergence and desistance of this type (Moffitt, 1993, 2007).

The Cambridge longitudinal study is a further important study into the development of anti-social and aggressive behaviours. The study began in 1961 with 411 young males from South London (Farrington & West, 1990). Its main focus was on the identification of factors that facilitated or led to the desistance from delinquent behaviour, the influence of life events on development and functioning and testing predictions related to life course trajectories. Using data from the Cambridge study Nagin *et al.* (1995) found support for the life-course-persistent and adolescent-limited aggressor distinction as described by Moffitt (1993, 2007).

In a separate longitudinal study by Cote *et al.* (2007), clustering analysis was used to explore trajectories for aggression in a sample of 698 males. The first trajectory included the majority of the sample (87%) and reflected low levels of aggression throughout the 12 year follow up. The second trajectory reflected a highly aggressive subgroup that continued to show aggression over time. Aggressive behaviour in this trajectory peaked at the age of eighteen and decreased at the age of twenty-four. Other studies have found similar evidence for these two trajectories (Broidy *et al.*, 2003; Huesmann, Dubow & Boxer, 2009). Despite this, some argue it is likely that more than just two types of aggressors exist and to use this distinction is somewhat restrictive (De Haan *et al.*, 2010; Fite *et al.*, 2009).

A comprehensive meta-analysis by Jennings and Reingle (2012) explored all 105 studies published on developmental trajectories for aggression and delinquency. They found that across studies the number of trajectories varied (ranging from 2 to 7 groups), and yet three groups of aggressors were indicated on average, despite the significant differences in study methodology. These groups were consistent with the life-course persistent, adolescent limited

and one group that exhibited no aggression or delinquency as described by Moffitt (2007). They concluded Moffitt's (2007) taxonomy was empirically robust and valuable in enhancing our knowledge of the possible life-course trajectories for aggression (Jennings & Reingle, 2012).

The life-course persistent and adolescence-limited types are further distinguished based on the severity of their actions and associated developmental risk factors (Moffitt, 2007). Risk factors are defined as characteristics, experiences or events that when present elevate the probability that a particular outcome will occur (Kazdin *et al.*, 1997). *Cumulative continuity* was a term used by Caspi *et al.* (1994) to explain the influence of developmental risk factors on aggression and/or delinquency over the life span. Caspi *et al.* (1994) contended that aggression is maintained over time due to its accumulative positive consequences. For instance, a highly aggressive adolescent may face peer rejection and isolation as a consequence of his/her behaviour, which may in turn increase hostility and thus aggressive inclinations towards others in social settings. Aggression may also be maintained through the reinforcing responses elicited from others, a process referred to as *interactional continuity* by Caspi *et al.* (1994). An example of this would be when the aggressor rejected by non-aggressive peers may seek out like-minded peers and create an environment whereby aggression is accepted.

A number of individual developmental risk factors have been implicated in the augmentation of both aggression and delinquency across the life span. They can be classified as relating to individual vulnerabilities, family dysfunction and parenting, childhood abuse and/or neglect, psychosocial stress, negative peer and community influences and educational factors (Farrington, 1992; West & Farrington, 1972). An overview of key studies and their findings is discussed next.

Family structure and functioning

Family factors, such as single parenting, young mothers, abusive households and antisocial parents are frequently cited as factors that lead to or otherwise culminate in delinquency and aggression in children (Derzon, 2010). In line with this, there is convincing evidence that aggression persists in families through the generations. For instance, the Cambridge study found that adolescents engaging in frequent delinquency were much more likely to have a biological parent and/or siblings who also engaged in antisocial behaviour (Farrington, 1995). Physical aggression shown by two year old children was predicted by a history of family

criminality (Keenan & Shaw, 1995). In their study Tremblay *et al.* (1999) found family influences explained 38% of total variance in physically aggressive behaviour after controlling for other related factors such as age, sex, socioeconomic status and family structure.

A meta-analytical review of 119 studies and 3,124 families by Derzon (2010) identified 21 possible family characteristics linked across the lifespan to anti-social, aggressive and delinquent behaviours. Interestingly, family risk factors differed according to the specific outcome behaviours examined, such as whether it was aggression *or* criminality. This somewhat contrasts with views and conclusions of Farrington (1995) from the Cambridge study who indicated that the causes of aggression and criminality were essentially the same. Derzon's (2010) meta-analysis highlights the need to examine developmental factors for aggression perhaps separately from those related to delinquency or other anti-social behaviours. This is consistent with the views of others (De Hann *et al.*, 2010; Ireland & Murray, 2005; Ireland, 2008; van der Voort *et al.*, 2013).

According to this meta-analysis, the prominent family predictors for aggression included family deviancy, unwanted pregnancy, living in urban housing, and low residential mobility. Parental psychopathology was a moderate predictor for aggression, although only in youth. Large family size, exposure to low parental warmth, poor parent-child relations, family stress, home discord, childhood maltreatment and coming from a broken home were small to moderate predictors throughout the life course (Derzon, 2010). Nonetheless, the majority of the studies reviewed predominantly focused on aggression in children and often in community settings. There were few studies that examined familial influences on aggressive behaviours among more extreme samples. Some research has explored adult partner aggression and its associative links with childhood family functioning (i.e. Lanz & Diaz, 2013; Scherer & Scherer, 2011). Yet, exploration towards understanding familial functioning and generic aggression by offenders remains limited to a single study.

To the author's knowledge, there is only one published study to date that has explored aggression and childhood family functioning in detained adult offenders (i.e. Shoham *et al.* 1986). In a sample of 60 violent and 60 non-violent adult men from one prison, Shoham *et al.* (1986) found positive historical family functioning (characterised by close family bonds and attachments) was negatively related to incidents of aggression in prison and the number of offences committed. Age and level of educational attainment were negatively associated with

acts of proactive aggression in custody. In contrast, age was positively associated with reactive aggression; in the sense that younger offenders were found to engage in more reactive aggression. However, the relatively small sample size and its confinement to offenders from a single establishment limit the possible generalisation of these findings to other forensic populations. Nevertheless, they indicate a potentially salient role for early familial functioning in the development of aggression in an adult forensic sample.

Parenting style

A further developmental consideration linked to family functioning is punitive parenting. Stormshak *et al.* (2000) explored the parenting practices of 631 children who were actively displaying aggressive and disruptive behaviour. They found punitive parenting practices, including yelling and threatening, were associated with many types of behavioural and internalized problems such as depression. However, only physically abusive parenting predicted childhood aggression, a finding that indicates that a specific association between parenting practice and childhood aggression exists. A review by Gershoff (2008) further emphasised how the only positive outcome from parental use of physical aggression as a disciplinary approach could be the child's immediate compliance on some occasions. It was argued that the majority of other outcomes were highly negative, which included low levels of moral internalization, poor mental health and increased temperamental susceptibility to aggression.

In the Cambridge longitudinal study (Farrington, 1992), parenting practice such as harsh, inconsistent and/or authoritarian discipline, and poor parental supervision were significant predictors of later delinquency. The relationship between severe parental discipline and aggression has been replicated in more recent studies, even when controlling for potentially confounding factors such as parental psychopathology (Riggins-Caspers *et al.*, 2003), ethnicity (Lansford *et al.*, 2004), parental abuse and neglect (Knutson *et al.*, 2004), child temperament and marital violence (Weiss *et al.*, 1992).

In other research using the Cambridge Study data, low parental involvement predicted aggression. Farrington (1989) found in the sample of 411 participants, that boys whose fathers did not engage with them during leisure activities were more likely to show elevated levels of aggression as teenagers and adults and to be convicted of a violent offence. Loeber and Farrington (2000) argued that of all possible factors related to child rearing, poor parental

supervision was the strongest and most reliable predictor of later delinquency.

Child-rearing practices and parental supervision were also emphasised in Patterson's *Coercive process theory* of negative externalised behaviour (2002). According to this theory, the combination of negative parental discipline reinforces a child's coercive actions, setting the stage for the development of later delinquency and aggression. Repeated parental attempts to obtain the child's compliance are reciprocally met with increasingly challenging behaviours. A withdrawal of the parent's request results in negative reinforcement of undesirable behaviours. According to this theory, parental failings to positively reinforce pro-social actions also influence negative behaviours. Patterson (2002) argued that the child's behaviour becomes subsequently generalised to other settings. A limitation of this theory, however, is its confinement to child-parent interactions, thus avoiding other factors known to influence human development.

The meta-analysis of Derzon (2010), however, found that child rearing practices, parental discipline, parental supervision and involvement, were less predictive of aggression and more strongly related to delinquency. Other factors such as family deviancy, unwanted pregnancy, and low parental warmth were better predictors of aggression. This again perhaps highlights the need to examine the development of aggression and delinquency separately.

Temperament

It is argued that temperament interacts within our experiences and environment to determine a variety of social outcomes and behaviours, including aggression (Goodnight *et al.*, 2007; Saltaris *et al.*, 2004). There is support for this premise in the literature. For instance, Tschann *et al.* (1996) found that children with 'difficult' temperaments was a vulnerability factor in circumstances of family discord and conflict, whereas an 'easy' temperament acted as a protective factor in these families. *Easy* children could readily adapt to new experiences, displayed positive moods and emotions and exhibited healthy eating and sleeping patterns. A *difficult* child tended to be very emotional, irritable, frequently cried, and had irregular eating and sleeping patterns (Thomas, Chess, & Korn, 1982). Prior *et al.* (2001) also found that 'slow-to-warm-up' child temperaments could be moderated by a warm, nurturing home where parents do not push children to early independence. *Slow-to-warm-up* children had a low activity level, and tended to withdraw from new situations and people. They were slow to adapt to new experiences, but accepted them after repeated exposure (Thomas, Chess & Korn,

1982). In addition, children with the greatest degree of temperament and cognitive predispositions towards aggression are often raised in families or by parents not equipped to develop their resilience to non-aggression (Lahey, Waldman & McBurnett, 1999).

A longitudinal study by Thomas *et al.* (1982) found temperament patterns were stable through childhood to adulthood and across cultures. The study of temperament has, therefore, not been confined to children. Research involving adolescents and adults is available in the literature (i.e. Evans & Rothbart, 2007; Rothbart, 2007). However, explorations of temperament and aggression in forensic populations are more limited when compared with the study of personality traits and their influences on offending behaviours (e.g. Blackburn, 1998; Hare, 2003).

An exception to this was a study by Giancola, Mezzich and Tarter (1998), who examined temperament and executive cognitive functioning (ECF) deficits in aggression among a sample of 249 offending adolescent girls. Compared with a control group of non-offenders, offenders had increased temperament difficulties and ECF deficits. ECF deficits and temperament were both significantly related to aggression and non-aggression. However, temperament was a stronger predictor of non-aggression than aggression. ECF was found to be the stronger predictor of aggression. This study perhaps highlighted that links between temperament and aggression may not be directly causal and could be influenced by other individual risk factors such as cognitive functioning deficiencies. Yet, few comparisons can be drawn with other populations, given that this study focused predominantly on girls.

Another published study by Engstrom, Persson and Levander (1999) explored temperament in 34 adult men detained for violence. They were matched through demographic data with 34 men with histories of suicide attempts. Engstrom *et al.* (1999) found no significant differences in temperament between the groups (violent offenders and suicide attempters) even after controlling for the influence of potentially confounding factors, such as psychiatric diagnoses. They concluded that their findings highlighted temperament as an important individual consideration for more extreme populations. However, matched research designs, as adopted in this study, are criticised for the accuracy of their matching processes and often questioned regarding the validity of their findings (Coolican, 2014; Gunter & Daly, 2012).

Childhood maltreatment and trauma

Childhood maltreatment is described here as including physical, sexual or psychological abuse and severe neglect. These commonly co-occur and to varying degrees (often referred to as ‘poly-victimisation’) (Allen & Johnson, 2011; McGrath, Nilsen & Kerley, 2011). Consequently, researchers have only recently begun separating these experiences to allow for their individual investigation (Finkelhor, Turner, Hamby & Ormrod, 2011).

Childhood maltreatment is recognised not only for its effects on a child’s immediate and short term functioning, but also on the development of later psychological and behavioural problems in adulthood (Briere & Scott, 2014). The association between childhood maltreatment and aggression and indeed with some of the known correlates of aggression, such as emotion dysregulation and hostile attribution biases, is well documented (Chen *et al.*, 2012; Murray-Close *et al.*, 2009). For example in a sample of 401 undergraduate men and women, Loos and Alexander (1997) explored existing levels of verbal aggression and retrospective histories of childhood maltreatment. Analyses revealed students’ experiences of multiple abuse in childhood significantly predicted levels of intrinsic anger and verbal aggression towards others. However, this study failed to examine other potentially confounding variables related to aggression and maltreatment, such as an active mental illness or trauma symptoms (Kilcommons & Morrison, 2005; Minzenberg, Poole & Vinogradov, 2008), which is a noteworthy limitation.

Further studies have explored childhood maltreatment and more overt forms of aggression. In a sample of 164 adult men and their partners, Taft *et al.* (2008) found that parental rejection in childhood was a primary predictor of later adult psychological functioning difficulties and physical aggression in intimate relationships. They also found an indirect relationship between aggression, childhood maltreatment, symptoms of post-traumatic stress disorder and social information-processing deficits, such as biased attributions and perceived hostility by others. In explaining their findings it was argued that childhood maltreatment had a *contagion effect* impacting on a number of domains of psychological and behavioural functioning. This effect was defined as the dispersing adverse consequences from instances of maltreatment (Taft *et al.*, 2008).

This view is supported by other research that identified that exposure to childhood maltreatment predicted the development of pro-aggression beliefs and attitudes (Ford,

Fraleigh & Connor, 2010), high levels of self-criticism and shame (Sachs-Ericsson, Verona, Joiner, & Preacher, 2006), and impaired emotion regulation (Saltzman, Holden & Holahan, 2005). Interestingly, all have been related to increased risk of aggression (Briere & Scott, 2014). It has also been demonstrated that childhood maltreatment is linked with reactive, but not proactive aggression (Ford *et al.*, 2010; Raine *et al.*, 2006).

The relationship between childhood maltreatment and later psychosocial adjustment difficulties also extends to forensic populations, although with fewer studies conducted compared with other populations (Sarchiapone *et al.*, 2009). One example is the study by Weeks and Widom (1998) who found that in a sample of 301 detained adult men, two thirds had experienced physical and sexual abuse in childhood. Violent offenders reported significantly greater levels of childhood neglect than non-violent offenders but not more physical abuse. Weeks and Widom (1998) concluded that their findings supported the notion that negative childhood experiences influenced the development of both delinquency and aggression. Wolff and Shi (2012) conducted a comparable yet more recent study in a sample of 4,000 adult offenders and found similar results. Other empirical evidence has linked childhood maltreatment as a risk factor for aggression, delinquency and antisocial behaviours in offenders (Dutton & Hart, 1992; Krug *et al.*, 2002; Lansford, Miller-Johnson *et al.*, 2007; Starzyk & Marshall, 2003).

The study by Sarchiapone *et al.* (2009) focused more specifically on childhood maltreatment and aggression rather than on delinquency. In a sample of 540 men, a positive moderate correlation was found between childhood maltreatment and lifetime aggression. Specifically, offenders with greater levels of childhood maltreatment were found to have higher lifetime prevalence rates for aggression including incidents of violence in prisons. However, when regression analyses were undertaken and included possible confounding variables such as offending history, childhood trauma was found to only relate to aggression in prison settings. Lifetime aggression was significantly related to violent crimes, number of criminal convictions and violence in prison. The association between aggression and childhood maltreatment in offenders is, therefore, far from straightforward. This study suggests the need to consider developmental and contextual variables, such as the prison environment and culture, in an attempt to understand individual differences in aggression.

Building on this, research has identified further differences between offenders and non-

offenders regarding their experiences of early maltreatment and aggression. For instance, Cima, Smeets and Jelicic (2008) compared self-reported maltreatment, trauma symptomatology, psychopathic personality disorder and aggression in both adult male offenders (n=47) and a control group of students (n=27). Their results showed that offenders (both psychopathic and non-psychopathic) presented with greater levels of maltreatment and trauma than controls. High levels of aggression were related to traumatic childhood experiences in non-psychopathic and control participants, but not in those with psychopathy. As a risk factor psychopathy was, however, independently linked to elevated rates of aggression. Personality, including psychopathy, will be considered in more detail in a later chapter.

Cima *et al.*'s (2008) finding that childhood trauma was not linked to aggression in offenders with psychopathy is contrary to the results from other studies (e.g. Sarchiapone *et al.*, 2009). This could be explained by the authors use of an aggregated psychopathy score rather than considering each personality facet separately as recommended in the literature (Patrick *et al.*, 2006). The use of self-report measures in the assessment of psychopathy may also induce biased responding (Lilienfeld, Fowler & Patrick, 2006). Another obvious limitation of the study by Cima *et al.* (2008) was its use of students as controls, who were clearly not comparable with offenders.

Kolla *et al.* (2013) also explored childhood maltreatment and aggression with offenders (n=25) and non-offenders (n=10). In contrast to Cima *et al.* (2008), their results indicated that compared with non-offenders, persistently aggressive offenders reported greater levels of childhood maltreatment, particularly physical abuse. This study further supports the notion that childhood maltreatment is an important risk factor for aggression in forensic populations. However, these studies utilised very limited samples and focused on the *forms* rather than the *motivations* for aggression (see Chapter 2). Research that has directly explored childhood maltreatment and aggression motivation in adult prisoners is scarce. This is surprising given the often reported elevations of aggression and maltreatment found in forensic populations (Zajenkowska, Jankowski, Lawrence, & Zajenkowski, 2013).

Despite empirical evidence that childhood maltreatment increases the risk of aggression across the lifespan, the causal mechanisms for this are not fully understood and agreed. Researchers have posited a number of potential mediators (Allen, 2011). For instance,

negative schemata and self-evaluations formed as a consequence of maltreatment have been found to influence adult behavioural and emotional functioning difficulties (Ford, Chapman, Connor & Cruise, 2012; Wright, Crawford & Del Castillo, 2009). Poor behavioural restraint, development of unhealthy personality traits and functioning, and elevated levels of impulsivity as a consequence of trauma have been hypothesised as having influence (Verona *et al.*, 2005). Others have emphasised the fact that the impact of childhood maltreatment differs depending upon its severity, duration, and the age of the child at the time of the abuse (Kolla *et al.*, 2013). However, there is agreement that further exploration to increase our understanding of the links between maladaptive childhood experiences and aggression is required (Allen, 2011; Swogger, You, Cashman-Brown, & Conner, 2011). Exploration of developmental factors and their influences on aggression motivations is one such avenue of potential study. Certain childhood experiences, such as maltreatment, may not only result in significant distress at the time, but also prolonged stress over the life-course. Next this thesis will examine the literature on the consequences of stress during development and its influence on later aggression.

Developmental stress

Stress is conceptualised as a state of cognitive or emotional tension resulting from adverse or demanding circumstances for the individual (Verona *et al.*, 2007). Lazarus and Folkman (1984) argued that stress is a dynamic relationship that exists between a person and his/her environment. Stress is, therefore, indicated as an ordinary consequence of everyday living (Monat & Lazarus, 1991). Developmental stress is defined as the single or multiple incidents throughout one's life that induce tension and distress, which in conjunction with genetic predispositions, play a large role in shaping the individual's psychological and behavioural functioning (Haller, Harold, Sandi & Neumann, 2014; Rutter, 1981). A variety of life stressors have been implicated in promoting aggression including: sex and role socialisation, traumatic events and symptoms, environmental and cultural competition, neurobiological influences, and exposure to pre-natal and child early post-natal life stress (Langer, Lawrence & Barry, 2008; Susman, 2006; Veenema, 2009; Verona, Sadeh, & Curtin, 2009). Given the focus of this thesis, attention will centre on the literature concerning developmental stress and aggression in offenders.

Attar, Guerra and Tolan (1994) posited that studies of stress and aggression can be classified into those that focus on chronic stressors or those that consider a discrete stressful events.

Chronic stressors were described as pervasive and persistent factors, such as developmental experiences of poverty and community disadvantage (Foy, Ritchie, Conway, 2012; Wyman *et al.*, 1991). In contrast, discrete stressors encompassed both negative life events (such as relationship breakdowns or health concerns), and daily hassles (such as interpersonal disputes and work and educational demands). All examination of the different types of life stressors has found that chronic and circumscribed events exert greater stress than daily hassles (Attar *et al.*, 1994; Tolan *et al.*, 1988).

Research has consistently found that the presence of a mild stressor is insufficient to result in externalised behavioural problems, such as aggression (Forehand, Middleton & Long, 1987). Finkelhor *et al.* (2007) reported that exposure to a greater number of stressors has a more powerful impact on maladjustment. Indeed, some scholars argue that the negative effects of exposure to stressors are often multiplicative rather than merely additive (Guerra *et al.*, 1995). In the child and adolescent literature some salient stressors for aggression have been identified including: family stress relating to poverty and disruption, peer rejection and victimisation, schooling problems and all of which are exacerbated under conditions of community adversity (Coie *et al.*, 1992; Lansford *et al.*, 2010). However, what remains uncertain is whether stressors are indeed the cause or consequences of developmental stress (Krahe *et al.*, 2012; Platje *et al.*, 2013).

Felson (1992) examined whether stress was directly or indirectly linked to aggression in his study of men and women adult offenders (n=141), individuals with mental health difficulties that were in remission (n=148), and non-offenders (n=1,886). Across groups he found negative life stressors positively correlated with aggression. The most influential stressors were divorce or breakdown of a long-term relationship, and loss of/demotion in employment. Less powerful stressors included educational or business failures, movement to a worse neighbourhood and physical or mental illness. In offenders, the results indicated that stress predicted aggression against all victim groups, except against children when the effect was reversed. It was also found that the effect of negative stressful events disappeared when someone was a victim rather than an agent of aggression. Indeed, the results indicated that being a victim mediated the stressful life events/aggression relationship. Felson (1992) argued that the behaviours of stressed persons resulted in their being targeted and having to respond with aggression. This supports an indirect rather than direct link between stress and aggression.

Agnew's (2006) *Social Psychological Strain Theory* is capable of providing further insights into how stressful events can influence aggression. Similar to other strain theories (i.e. Cohen, 1955), Agnew emphasised that stressful circumstances cause strain that fosters impelling emotional states such as anger, anxiety or depression, which then pressures the individual towards behavioural deviancy. He identified the sources of strain as including failures to achieve a valued goal, the loss of a desired object, low social control, or the presentation of noxious stimuli creating incentives from antisocial actions. Events perceived as unjust rather than unfortunate result in greater levels of stress (Agnew, 2006).

In contrast to the traditional perspective which views strain as arising only from economic deprivation (i.e. Cohen, 1955), Agnew (1992, 2006) posited that strain can result from any relationship or social event. This includes parental rejection, maltreatment, poor adjustment opportunities and negative social experiences. All of these have been linked to aggression as described in the preceding paragraphs. The theory also contends that strain does not always result in delinquency or aggression. Cognitive, emotional and behavioural coping strategies can be used to rationalise or reduce life strain (Agnew, 2006). However, it is expected that aggression and delinquency are most likely to occur in individuals who present with low personal coping abilities, low social support (such as from parental attachments and bonds), and a high association with an unhelpful subculture or significant levels of prior involvement in deviancy (Agnew, 1992; 2006).

Consistent with this theory, there is evidence of a positive relationship between strain and behavioural deviance (Baron; 2009; Schroeder, Hill, Haynes, & Bradley, 2011; Stogner & Gibson, 2010). Studies have also successfully applied strain theory principles to bullying behaviours in children (Jang, Song, & Kim, 2014), conflict in the workplace (Bedi, Courcy, Paquet, & Harvey, 2013), eating disorders (Froggio, 2007), deliberate self-injury (Hay & Meldrum, 2010), and crime (Angew, 2006; Mason & Smithey, 2012; Simons, Yi-Fu, Stewart & Brody, 2003).

Further research has linked strain to elevated levels of potentially negative emotions, such as anger, anxiety, frustration and depression (Aseltine, Gore & Gordon, 2000; Jennings *et al.*, 2009; Schroeder, *et al.*, 2011). Thus, conceptual parallels exist between Strain Theory and traditional theories of aggression, such as the *Frustration-aggression hypothesis* (Dollard *et al.*, 1939) and *Excitation transfer theory* (Zillmann, 1983). These theories all indicate that

unique contextual factors influence affective states and their processing, which ultimately elevate propensities towards aggression. There is further discussion of these aggression theories in chapter 4. It is, therefore, surprising that applications of strain theory remain somewhat confined to criminology, and have not been fully embraced by aggression researchers (Angew, 2006; Jang, Song, & Kim, 2014).

Critics have, however, indicated that not every underlying assumption of Agnew's theory (for instance, strains perceived as unjust, of high magnitude, or are linked to low social control induce deviant coping) are empirically supported or have been simultaneously tested (Froggio, 2007). Others contend that strain theorists have failed to explain adequately the process of criminal adjustment and why only certain strains result in delinquency or aggression (Hay, 2003). The fact that much of the research evidence is confined to studies of western cultures and that existing theories encounter difficulties in explaining delinquency or aggression in the absence of any visible strains are further cited limitations (Froggio, 2007). In response, Agnew (2006) noted that researchers should seek to advance existing knowledge through further investigation of mediating variables between strain and aggression. For instance, how strain may increase attitudes favouring aggression or enhance affiliation with anti-social peers, which in turn may lead to aggression.

Childhood peer relationships

A further important developmental risk factor for aggression concerns relationships and interpersonal functioning. The majority of this research has focused on links between interpersonal rejection and aggression in the context of children's peer relationships. Unpopularity and peer rejection have been examined in many ways such as through self-report (White & Kistner, 2011), observational ratings (Leflot, van Lier, Onghena, & Colpin, 2013), peer nominations (Ladd, 1999) and teacher ratings (Mercer & DeRosier, 2008).

Across these studies the results have consistently indicated that children rejected by pro-social peers are more aggressive than children who are accepted (Cicchetti & Bukowski, 1995; Kupersmidt, Coie, & Dodge, 1990; McDougall, Hymel, Vaillancourt, & Mercer, 2001). Rejected children are also more likely to attribute hostility to the actions of others and to experience problems in solving interpersonal difficulties, even when potentially confounding influences such as temperamental vulnerabilities and psychological adjustment variables were controlled for (Dodge *et al.*, 1990; Ladd, 1999). The acceptance of aggression by antisocial

peers, often studied in terms of affiliations within street gangs, has also been found to contribute to increased aggression and delinquency (Espelage *et al.*, 2014; Estrada *et al.* 2014). Conversely, peer disapproval of negative behaviours was reduced in incidents of self-reported aggression. This potentially highlights pro-social peer influences as a possible protective factor (Farrell *et al.*, 2010; Worling & Langton, 2015).

In a study of 998 youths and their families, Dishion, Ha and Verroneau (2012) used structural equation modelling to examine the connections between aggression, family factors, peer influences and social disadvantage. In this longitudinal study, they found good-fit for a model that emphasised peer influences in predicting later aggression over negative familial or social factors. The authors argued that peer relationships were identified as the central mechanism through which other developmental risk factors, such as social deprivation and negative familial influences, culminate in aggression. In terms of the wider consequences of peer rejection, path modelling techniques were used by Fite *et al.* (2013) in their sample of 147 school-aged children. They found peer rejection significantly contributed towards low academic performance, which is also a known risk marker for aggression (Farrington, 1995; Fergusson, Vitaro, Wanner, & Brendgen, 2007; Moffitt, 1993).

Nevertheless, the causal associations between peer rejection and aggression remain disputed. The central questions here remain as to whether aggressive children are more likely to be rejected, or does rejection heighten aggression in response, or do other factors underlie both? Research has yielded mixed outcomes, with some studies indicating that aggression results in peer avoidance and rejection (Little & Garber, 1995; Vitaro, Pedersen, & Brendgen, 2007), whilst others found that rejection and peer isolation influence elevated rates of aggression and negative anti-social behaviours (Beran, 2009; Spriggs *et al.*, 2007). In contrast with these, Burke *et al.* (2002) argued that peer rejection is merely an incidental risk marker for other maladaptive variables, such as family problems, absence of interpersonal skills or other functioning difficulties. It is important to note that despite the longitudinal nature of some of these studies, they are nonetheless criticised for their correlational design, which does not allow for causal inferences to be made.

Summary

A number of developmental risk factors for aggression have been identified, mainly through use of longitudinal study. For example, key factors include family functioning, parenting

style, temperament, childhood maltreatment and trauma, developmental stress and peer relationships. This literature has provided some useful insights into the developmental origins and our understanding of aggression across the lifespan. However, it could be argued that our understanding of aggression was hindered by an increased focus on delinquency rather than aggression, or failings to regard them as distinct (i.e. Farrington, 1995). Investigation of developmental factors associated with aggression in offenders remains somewhat neglected when compared to their exploration in non-offending populations. Aggression researchers have equally not fully capitalised on parallel concepts in other literatures, such as Strain Theory (Agnew, 2006), and its potential to provide greater insight. A tendency to focus on developmental factors and *form* rather than aggression *motivation* is a further limitation in the literature. Some studies have examined the association between developmental factors and *motivations* for aggression using the existing research base for this, which is the proactive versus reactive distinction (see Chapter 2). This literature is, therefore, discussed next.

3.3 Developmental correlates of proactive and reactive aggression

It is argued that reactive and proactive aggression have distinct developmental underpinnings (Connor *et al.*, 2004; Vitaro & Brendgen, 2005). Indeed, reactive aggression is considered to reflect emotionally driven aggression (Berkowitz, 1993 [described in chapter 4]). In contrast proactive aggression is more planned and thought related to social learning models (Bandura, 1973; Mischel & Shoda, 1999).³ Advocates of this motivational distinction have argued that the evidence indicates that discrete developmental differences exist for each type (Card & Little, 2006; Polman *et al.*, 2007; Vitaro & Brendgen, 2005). This evidence is critically reviewed here with a focus on developmental models and considerations. Individual and personal differences in relation to proactive and reactive are discussed in greater detail in Chapters 4 and 5.

Dodge (1991) contended that parental influence in terms of parent-child interactions, attachment and familial violence are linked to the development of aggression motivations. According to his *Parallel Pathway Model*, both reactive and proactive types originate from different early socialization experiences and develop independently from one another. Reactive aggression was hypothesised to be the product of threatening, unpredictable and/or abusive parenting. In contrast, proactive aggression was described as the result of more

³ In the literature alternative terms exist to reflect this distinction, such as instrumental vs. hostile, yet this thesis will utilise reactive and proactive throughout for consistency.

supportive environments, but ones that expose the individual to successful role models and foster coercive behaviours through reinforcement (Dodge, 1991).

Several empirical studies, mostly with children and young people, have examined the underlying assumptions and principles outlined by the parallel pathway model. For example in a sample of 193 boys aged between 8 to 12 years old, Poulin and Boivin (2000) utilised peer, teacher and parent rating scales to explore parental influence on reactive and proactive aggression. They found proactive aggressors were exposed to less parental supervision and monitoring, as well as fewer household rules than reactive aggressors and non-aggressors.

In another study with 341 boys, Merk *et al.* (2005) found that the presence of aggressive role models in early childhood predicted subsequent levels of proactive aggression. This result is supported by previous research by Connor *et al.* (2003), whose results from a mixed sample of 323 adolescents, indicated that exposure to aggressive role models who valued the use of aggression as a means of conflict resolution or advancing personal interests in the family, was significantly related to the onset of proactive aggression. A more recent study with a larger sample (N=1,148) of boys and girls by Pang *et al.* (2013) identified that permissive parenting was significantly related to proactive and mixed (reactive and proactive motives combined) but not reactive motivations for aggression. Collectively these findings are consistent with the notion of learning and reinforcement of proactive aggression as emphasised by Dodge (1991).

Two studies by Dodge *et al.* (1997) considered whether reactive aggression was particularly related to harsh and unpredictable parenting and/or abuse. Of 585 boys and girls, and 50 boys described as ‘chronically aggressive psychiatrically impaired youth’, Dodge *et al.* found reactive aggressors were more likely to have experienced histories of harsh discipline, abuse and family life stress compared with proactive aggressors. There was, however, little information concerning the precise nature of a sample classified as ‘chronically aggressive psychiatrically impaired youth’, which perhaps limits wider generalisation of these findings to other populations perhaps prone to engage in habitual aggression.

Dodge (1991) emphasised reactive aggression was a *consequence* of abusive and threatening early life environments and the absence of healthy parenting approaches. Therefore, consideration of research that has examined parenting approaches and aggression could be equally valuable in supporting the veracity of the parallel model. Consistent with the

assertions of the parallel pathway model, Calkins and Fox (2002) found that reactively aggressive children's behaviours heightened levels of maternal stress which, it was argued, influenced their parenting style. Parents of reactive aggressors were also found to be less responsive (Shaw *et al.*, 1998; Vitaro *et al.*, 2006) and more intrusive (Lee & Bates, 1985; Vitaro *et al.*, 2006) towards their children.

Nevertheless, research evidence that harsh parenting exclusively results in the development of reactive aggression has not consistently been established and certainly not with offenders where such investigation remains limited. For instance, using data from a mixed sample of boys and girls (n=2,223) from the Québec longitudinal study, Vitaro *et al.* (2006) identified the fact that harsh parenting of toddlers predicted both proactive and reactive aggression in later childhood. Vitaro *et al.*'s results indicated a role for negative emotionality and harsh parenting in both reactive and proactive aggression. However, their analysis also indicated different etiological pathways for both aggression motivations, which is somewhat consistent with the assertions of the parallel model (Dodge, 1991). In addition to the conflicting findings in general samples, few studies have examined the relationship between parenting and aggression in adult offenders. At present the only published study with detained men (25 offenders and 15 non-offenders), found abusive childhood experiences including harsh and abusive parenting was significantly related to reactive, but not proactive aggression (Kolla *et al.*, 2013). Yet, caution is advised before generalising results from such small-scale studies to larger populations.

Further evidential support for the parallel model (Dodge, 1991) can be drawn from the literature on peer rejection and its links to aggression. As described in the preceding section, peer rejection is recognised as a possible behavioural outcome and important predictor of aggression (Murray *et al.*, 2007). However, several studies have shown that reactive aggressors experience greater rejection and peer victimisation than proactive aggression (Fite, *et al.*, 2013; Ostrov, 2010; Poulin & Boivin, 2000). In contrast, it was found that proactive motivations were reinforced by like-minded and similarly proactively aggressive peers (Poulin & Boivin, 2000). The meta-analytical review by Card and Little (2006) of 42 studies and 20,000 children indicated that reactive aggressors experienced less peer acceptance and higher rates of rejection. Despite some positive evidential support, Dodge's (1991) parallel model has difficulty in accounting for the co-occurrence of both reactive and proactive aggression motivations (Fite, *et al.*, 2009; Merk, *et al.*, 2005). Ireland (2009) also commented

that perhaps owing to the conflicting findings between reactive and proactive aggressors on factors such as harsh parenting or rejection from pro-social peers, the literature trend has moved away from the parallel development model towards other possible explanations.

The *Sequential Model* was proposed as an alternative to the parallel model by Vitaro and Brendgen (2005) who emphasised the temperamental and neurophysiological origins of reactive aggression, and subsequent environmental influences on the development of proactive aggression. Essentially Vitaro and Brendgen (2005) argued that early reactive aggression opens the gateway to proactive aggression through consequential learning and goal attainment. An individual's temperamental characteristics predispose to early reactive aggressive behaviours, which if rewarded (including via goal achievement) manifest over time as proactive aggression (Bandura, 1973; Mischel, 1999).

Studies have demonstrated that reactive aggression emerges before proactive aggression (Connor *et al.*, 2004). For instance, Hay *et al.* (2000) identified the fact that the characteristics associated with proactive aggression did not emerge until later childhood, thereby supporting the premise that proactive aggression followed reactive aggression. The study by Lansford *et al.* (2002) provided further evidential support for the sequential model. In a prospective longitudinal study of 585 children followed between the ages of 5 to 17, Lansford *et al.* found that early reactive aggression predicted subsequent proactive aggression using curve analysis. However, the high attrition rate of participants in this study (only 15 per cent of the original sample was present at final collection), coupled with its use of observational approaches in measuring aggression, would suggest there is need for caution to be exercised in relation to the wider interpretation of these findings.

In contrast, in a more recent study, Vitaro, Brendgen and Barker (2006) investigated the developmental trajectories of both reactive and proactive aggression in a sample of 1,037 males aged between 13 to 17 years old. Consistent with the sequential model, they predicted that proactive aggression would increase with age and reactive decrease. However, they found no significant increase in either type of aggression with age. A small group of children showed a simultaneous increase in *both* forms of aggression at the ages of 13 to 15 followed by a decline in both thereafter. This study thus challenged the notion that both functions of aggression are developmentally different. Clearly, this study is limited by its use of a relatively narrow time frame (13 to 17 years). Therefore, any inferences regarding

developmental differences, or indeed similarities outside of these ages, are relatively unfounded. It is also conceivable that proactive motives do not consistently emerge until later adolescence/early adulthood, given the need for environmental reinforcement as contended by the sequential model (Vitaro & Bredgen, 2005).

Fung, Raine and Gao (2009) examined the hypothesis that proactive aggression would increase with age and greater exposure to environmental reinforcement. In their mixed sample of 5,615 children aged between 11 and 15 years, they found proactive aggression increased with age in boys but not in girls. Reactive aggression showed only minimal age increases and no differences between sex. Therefore, this study supported the premise that proactive preceded reactive as emphasised by the sequential model (Vitaro & Bredgen, 2005).

The sequential model has limitations that must be acknowledged. For instance, the model implies that proactive aggression persists from reactive aggression and is maintained by external contingencies. At this stage concomitant reactive motives are deemed absent. Indeed, its authors are explicit in speculating that complete transitions from reactive aggression to proactive aggression can occur due to increased autonomy and permissive environments that reduce the likelihood of frustration in response to a blocked goal and thus reactive aggression (Vitaro & Bredgen, 2005). An implication of such assertions is that this model experiences difficulties in accounting for the behaviours of the mixed motive aggressor (Cima *et al.*, 2013; Fite, *et al.*, 2009). Arguably, the sequential model also lacks a degree of depth in respect of the precise factors and processes that reinforce and, therefore, underlie the augmentation of proactive aggression.

The differences in findings between Barker *et al.* (2006) and Fung *et al.* (2009) appear to characterise the literature in this area, in which answers remain uncertain as to whether motivations for aggression develop in parallel (Dodge, 1991), simultaneously (Vitaro & Bredgen, 2005), or by some other processes. Uncertainty also remains regarding the etiological influences responsible for the differential shaping of aggression subtypes (Baker, Raine, Liu & Jacobson, 2008). This view certainly extends to other perhaps more extreme populations such as prisoners.

One of very few studies to test the developmental models of aggression with an offending sample was undertaken by Cima *et al.* (2013). In a mixed sample of 845 participants, they

compared five groups of children, adolescents and adults from offending and non-offending populations. Their results indicated that both reactive and proactive aggression increased in offending and non-offending groups as a function of aging. Adolescents and adults displayed higher levels of aggression than children, thus supporting the notion of an age curve in aggression (Broidy, *et al.*, 2003; Farrington, 1986; Huesmann, Eron & Dubow, 2003; Moffitt, 1993). Cima *et al.* (2013) also found that proactive aggression differed between groups in respect of its development and life-course trajectory; proactive aggression declined in the non-offender groups after puberty (ages 11-18 years), whilst it increased in the offender group into early adulthood (ages 18-23 years) and only declined in some individuals by later adulthood (24+ years). No such effects were found for reactive aggression across other groups. This evidence further supports the principles emphasised by the sequential developmental model (Vitaro & Bredgen, 2005). Given the differences found between offending and non-offending groups, it also highlights the need for developmental models that are sensitive to forensic populations due to their more extreme nature.

A limitation of the Cima *et al.* (2013) study, however, was that it only explored reactive and proactive aggression separately, even though it accepted that a relationship existed between both motives. Therefore, uncertainty exists about the early socialisation and subsequent developmental processes of different types of aggressors from more extreme populations, thus the generalisability of any such theory remains speculative. Indeed, the current thesis aims to address this through exploring the applicability of these developmental models to adult offenders. This is an important step towards furthering our understanding of the aetiology of aggression motivation in offenders (Ireland, 2009).

Existing developmental models do, as indicated thus far, emphasise the influence of multiple factors in the development of aggression. An integral feature of this is the child-parent dyad. Child-parent relationships are a critical feature of other prominent developmental theories and deserve therefore some focused attention. A review of this literature is carried out next.

3.4 The child-parent dyad: attachment and aggression motivation

The child-parent dyad and how this contributes to personal and behavioural development are considered critical. Indeed, Bowlby (1988) argued that affectional ties between children and caregivers have a unique evolutionary basis that functions to promote survival and reproductive fitness. Attachment is described as the emotional bond that connects one person

to another across time and setting (Ainsworth, 1989; Bowlby, 1988; Savage, 2014). Drawing on ethological theory, Bowlby (1988) postulated that under conditions of stress, threat, illness, hunger or fatigue, a repertoire of pre-adapted behaviours, such as crying, clinging or signalling are instigated by the child to maintain caregiver proximity and reduce distress. Repeated interaction between child and caregiver over time serves to regulate the child's emotions and behaviour. This motivational system, referred to as the *Attachment Behavioural System* by Bowlby (1988), provides a conceptual link between ethological models of human development and modern theories of emotion regulation and personality (see Chapters 4 and 5).

It is argued that child-caregiver attachments are reciprocal and based on the social, emotional, cognitive and behavioural characteristics of both parties (Goldberg, 2014; Grattagliano et al., 2015; Hansen, Waage, Eid, Johnsen & Hart, 2011; Savage, 2014). Based on the quality of these parental relationships, children develop secure or insecure attachments (Ainsworth, Blehar, Waters & Wall, 1978; Bowlby, 1988). These patterns of attachment are mediated by environmental factors as opposed to heritable influences (O'Connor *et al.*, 2000; Oshri et al., 2015). Threats of abandonment or perceived abandonment are thought to be instrumental in activating negative attachment behaviours, including aggression (Bowlby, 1988).

A classification system of attachment patterns in childhood was devised by the developmental psychologist Mary Ainsworth (1913-1999) following the research using the 'strange situation procedure'. This examined infant attachment responses following a set separation and reunion procedure (Ainsworth *et al.*, 1978). Four stable patterns of attachment responses from the infant were reliably demonstrated. A secure pattern reflected the infants desire to explore the environment, whilst needing caregiver proximity. The caregiver is thus available, responsive and sensitive to their infant's needs. The three remaining insecure patterns reflect either avoidant, ambivalent or disorganised attachment orientations from infant to their caregiver (Main, 1996). However, there are critics of the procedure who declared their concern over its ecological and cross-cultural validity (Connor, 2002; Cicchetti & Toth, 2015; Lamb *et al.*, 1984).

Insecure childhood attachments and poor parental bonds were found to increase the risk of aggression (Buist, Dekovic & Meeus, 2004; Oshri *et al.*, 2015), antisocial behaviour (Marcus & Betzer, 1996; Thompson & Gullone, 2008), externalised behavioural difficulties (Elgar,

Knight & Worrall, 2003), internalised pathological symptoms (Dozier, Stovall-McClough, & Albus, 2008), and delinquency (Murray, Irving, Farrington, Colman, & Bloxson, 2010). The avoidant and disorganised patterns of childhood attachment were particularly implicated (Hengartner *et al.*, 2015; Lyons-Ruth *et al.*, 1993; Renken *et al.*, 1989).

Marcus and Kramer (2001) described three possible pathways through which poor attachments and bonds culminate in aggression and other disruptive behaviours. First, in the *internal working model* of an insecurely attached child all relationships are perceived as rejecting and neglectful, resulting in hyper-vigilance to potential harm, residual anger arousal and aggression towards others. Second, *poor parental sensitivity* to a child's needs result in negative disruptive behaviours including aggression as a means of gaining desired adult attention. This could manifest in the use of proactive aggression to achieve particular goals. The final pathway indicated that insecure attachments result in an *antisocial internal working model* and emotion regulatory problems that create difficulties in addressing problems through prosocial means.

Each of the pathways described has been independently supported by empirical study (Berlin, Cassidy & Appleyard, 2008; Dutton, 2011). Sroufe *et al.* (1999) argued that the relationship between aggression and attachment could never be directly causal owing to its inclusion of other variables such as cognition and emotion through reference to an internal working model. There is nonetheless agreement that childhood attachment is an important risk factor in the developmental pathways towards later aggression (Savage, 2014).

Attachment theory was originally devised to aid understanding of behaviour in children, and more recently its principles have been applied across the lifespan (Chopik, Edelstein, & Fraley, 2012, Savage, 2014). Yet, research with adults remains less extensive than investigations with children (Savage, 2014). Empirical research on attachment with offenders is also quite limited (Beech, Craig & Browne, 2009; Ireland, Ireland, & Birch, 2009). Hazan and Shaver (1987) argued that the emotional bond developed in adult relationships remained the function of the *Attachment Behavioural System*, and thus shared common features to the infants and caregiver bond. The *Continuity Hypothesis*, postulated that early attachment relationships developed into internal working models of the self and others through the life-course, was thus developed. Hazan and Shaver (1987) found some support for the continuity hypothesis, with securely attached adults more likely to recall their childhood relationships

with caregivers as being affectionate, caring and accepting.

Fraley (2002) found correlations ranging from small to moderate between parental and romantic attachments suggesting that similar patterns of attachment exist at different points in the life span. The premise of attachment stability and continuity across the lifespan is also supported by other studies (Cozzarelli *et al.*, 2003; Savage, 2014; Walters *et al.*, 2000), and is reminiscent of Bowlby's (1988) assertions that attachment characterized human relationships "...from the cradle to the grave..." (p 180). Consequently, there is much overlap between the attachment models and frameworks for children and those developed for adults in terms of their underlying principles and overarching argument.

One of the most cited adult attachment models is the four-category framework described by Bartholomew and Horowitz (1991). They postulated a secure type had a positive view of self and others, indicating feelings of worthiness, acceptance and the desire to maintain close relationships. Conversely, the insecure pre-occupied type was associated with a negative view of self and positive view of others resulting in the individual striving for acceptance and value from others. The dismissive type harboured a positive self-view and a negative view of others. It was argued that this manifested itself through a desire to avoid close relationships due to their potential as a source of disappointment and a desire to maintain self-reliance. The fearful type had a negative view of self and others, thus projecting a fear of rejection and a willingness to guard the self. The study utilised to validate their model was not without its limitations (Bartholomew & Horowitz, 1991). For instance, Bartholomew and Horowitz (1991) used student samples aged between 17 to 24 years old, which perhaps limits the generalisation of the model to other samples. Another limitation of the study was its use of self-report measures of attachment with little consideration of the possibility of biased responding by participants. The conceptualisation of attachment as categorical rather than dimensional has also attracted criticism over its accuracy and validity. Some scholars have argued a dimensional approach is more appropriate in the study of attachment (Nofle & Shaver, 2006; Savage, 2014).

Building on the Bartholomew and Horowitz (1991) model, subsequent research indicated two fundamental dimensions with regard to attachment in adults (Brennan, Clark & Shaver, 1998). One dimension was attachment-related anxiety, whereby high scorers exhibited a tendency to worry whether others are available, responsive or attentive. Lower scorers were more secure

in the perceived responsiveness of others. The second dimension was attachment-related avoidance. Individuals on the high end of this dimension preferred not to rely on others or be open with others. Individuals on the low end of this dimension were comfortable being intimate with others, and were content depending upon others and having others depend upon them. A prototypical secure adult attachment style would be low on both of these dimensions (Brennan *et al.*, 1998).

The creation of classification systems for adult attachment styles has increased empirical study of their association with other psychological concepts and behaviours, including aggression (Frodi *et al.*, 2001; Tillhonen, 1993). Savage (2014) conducted a detailed review of the attachment-aggression literature across disciplines. This included critical analysis of 429 published peer-reviewed studies. Savage contended that studies could be classified into one of five categories namely (i) parental separation and its impacts; (ii) explorations of categorical distinctions of attachment with children; (iii) studies of continuous measures of attachment and aggression with adolescents and adults; (iv) studies of parental bonding and aggression; and, (v) studies of parental sensitivity. Overall these studies consistently indicated an association between insecure attachment and aggressive behaviours for both men and women, and across culturally diverse samples including offending populations. Savage (2014) found this association was upheld even when potentially confounding variables, such as childhood victimisation, were considered through multivariate statistical analyses.

A study by Corvo (2006) explored whether separation prior to 18 years of age and violent exposure in childhood were related to later adult aggressive behaviours towards partners. In a sample of 74 men referred for therapeutic intervention for intimate partner aggression, a found strong positive correlations between both exposure to physical abuse in childhood, and parental separation or loss in childhood (such as through bereavements or divorce) with later violence against partners was found. Additional analyses were adopted to identify the source and strength of these factors. The results from multiple regression analyses indicated separation and/or loss of attachment explained as much of the variance ($r = .34$) as did parental physical abuse (from either their mother or father). Corvo (2006) concluded these results suggested a dual development pathway existed for aggression against partners; experiencing disruptive attachments as well as child abuse victimisation.

Savage (2014), however, concluded that many aspects of the attachment-aggression relationship remain only partially explored. A neglected area identified, as noted earlier, was research with more extreme populations such as offenders. For example, of the four hundred and twenty nine published studies examined only eleven used offender samples (i.e. Alarid, Burton & Cullen, 2000; Butler *et al.*, 2007; Chui & Chan, 2011; Corvo, 2006; Goldstein & Higgins-D'Alessandro, 2001; Gurevich, 1996; Hansen *et al.*, 2011; Menard & Grotmeter, 2011; Nussbaum *et al.*, 2002; Saltaris, 2002; Van Ijzendoorn *et al.*, 1997). Five of these eleven studies (Butler *et al.*, 2007; Corvo, 2006; Chui & Chan, 2011; Hansen *et al.* 2011; Menard & Grotmeter, 2011) found significant support for the association between insecure attachment and aggression. The remaining six (Alarid, Burton & Cullen, 2000; Goldstein & Higgins-D'Alessandro, 2001; Gurevich, 1996; Nussbaum *et al.*, 2002; Saltaris, 2002; Van Ijzendoorn *et al.*, 1997) found moderate to small links. Yet, relational coefficients were often hindered by small sample sizes, which is an inherent difficulty associated with research in 'hard-to-reach' groups such as prisoners (Ward, 2012; DeLisi & Piquero, 2011).

One study noted in this review that considered adult offenders in particular was the research by Hansen *et al.* (2011). In a sample of 92 men the researchers examined relationships between attachment, the 'big five' personality traits, antisocial tendencies and aggression towards partners using self-report questionnaires. Regression analyses indicated certain personality traits (such as low agreeableness and high neuroticism) significantly predicted convictions for violent crimes. However, insecure attachments were better predictors of aggression towards partners even when controlling for other factors (such as age, personality factors and antisocial tendency). It was concluded that insecure attachments have a more significant role in the commission of interpersonal aggression rather than violent crimes. Hansen *et al.* (2011) acknowledged their use of self-report measures was a possible limitation due to the possibility of biased reporting.

Methods of assessing attachment range from interview (George & Solomon, 1996), to simpler and more economical questionnaires and rating methods (Bartholomew & Horowitz, 1991). Researchers have found reliability and good construct validity when adopting these measures (Brennan *et al.*, 1998; Feeney & Noller, 1996; Griffin & Bartholomew, 1994). There are some indications, however, that these approaches have their limitations (Feeney & Noller, 1996). As most measures of adult attachment are retrospective, they are liable to the influence of recall bias (Savage, 2014). Williamson *et al.* (2002) also questioned whether attachments are

true styles per se and distinctly measurable, or merely manifestations of personality traits and state based characterisations of a given situation and relationship.

Evidence connecting insecure child and adult attachments and increased rates of aggression is growing (Savage, 2014). However, several aspects of this literature remain insufficiently explored and consequently less well understood. For instance, few studies have considered adult attachment and generalised aggression, or differences between proactive, reactive and mixed motive aggressors in terms of their styles of attachment, or indeed such concepts in more extreme populations such as forensic samples. Difficulties with measuring attachment could be one explanation for this, and the differing approaches used often produce theoretical models or empirical findings with little cohesion.

3.5 Concluding Comments

Developmental experiences clearly have an enduring influence on behavioural functioning. Heritable influences cannot be overlooked or easily disentangled from developmental factors. Thus, it is likely that both influence functioning to varying degrees. Links between aggression and developmental factors have been considered through several longitudinal studies that examined their association across the lifespan. Aggression was found to desist for some individuals and persist for others (Huesmann *et al.*, 2009; Moffitt, 2007).

A number of social, developmental and individual risk factors have been implicated, and found to differentiate those who persist or desist from their use of aggression (Huesmann *et al.*, 2009; Moffitt, 2007). With regard to developmental factors the empirical evidence indicates that family structure and functioning, parenting style, childhood maltreatment and trauma, stress and peer relationships are salient considerations. Caspi *et al.* (1987) contended that this is a function of either the accumulation of consequences of their actions or interactional developmental processes.

Several of these longitudinal studies, however, focused on delinquency as opposed to aggression *per se*. There are undoubtedly overlaps, although equally clear conceptual differences with some delinquent behaviour fail to satisfy accepted definitions for aggression, such as the use or distribution of illegal substances. This highlights the fact that the evidence supporting the trajectory of aggression across the lifespan remains less well developed compared to considerations of delinquency. There is thus the need to examine

further the developmental factors linked specifically to aggression.

Attachment is a prominent developmental factor and is consistently mentioned in most discussions and consideration of human development. Based on the premise of continuity throughout the lifespan (Bowlby, 1988), researchers have begun to consider the applicability of attachment principles to adults. A number of interesting findings have emerged, as indicated in this chapter. There are, however, gaps within our knowledge and understanding of attachment and aggression. For instance, it is clear why attachment behaviours including aggression may serve an important evolutionary function in infancy for protection and managing distress. It is, however, unclear what function this serves for adults. Indeed, we have little understanding as to whether a dominant style exists in adulthood, and whether this has an influence on aggression. Examination of attachment and generalised aggression in offenders has also been a relatively neglected area of study, perhaps due to an increased focus on aggression towards intimate partners. Research on the association between attachment and more generalised aggression in offenders is thus clearly an area needing further exploration.

A number of developmental models for aggression are indicated in the literature (Dodge, 1991; Vitaro & Brendgen, 2005). Each regards the development and manifestation of aggression motivation as distinct. Much of this literature, however, has utilised child and community samples. Therefore, questions as to the applicability of these models to more extreme populations such as offenders emerge, especially without further testing and exploration. To date such testing has certainly not been fully undertaken. The paucity of studies exploring the developmental origins of mixed motive aggressors is another difficulty. Consequently, a clear conceptualisation of the developmental origins and factors influencing all forms of aggression remains absent. A developmental model of aggression motivation for offenders, which was exclusively developed from the study of offenders, has also yet to be proposed in the literature. Interrelationships exist between developmental theories and factors with individuals' internal and external functioning. The next chapter explores this further with a particular focus on cognition, emotion and aggression.

Chapter 4

AGGRESSION MOTIVATION, EMOTION AND COGNITION

4.1 Structure of the chapter

Building on discussions of cognition, information processing and aggression in Chapter 2, this current chapter further deals with emotion and its relationship to these concepts. Emotion is also emphasised in reactive aggression motivation, thus there is need for further attention to be given to it. The definitional issues associated with emotion are first discussed briefly. This is followed by a focus on emotions that are most relevant to aggression, particularly anger. The literature on cognitive schemata and emotion regulation, including their links with aggression in forensic populations, is then evaluated. Identification of the deficiencies in our knowledge and areas of research need draws this chapter to a close.

4.2 Defining emotion

A contentious definitional debate exists, with the word emotion only recently utilised as an all-encompassing term for other concepts such as *desires*, *affections*, *moods* and *passions* (Dixon, 2012; Eysenck & Keane, 2000). In his seminal paper titled, ‘what is an emotion?’ William James (1842-1910) described emotions as the bodily disturbance, perceptions and changes in feeling states (James, 1884). Barbalet (1999), however, argued this definition overstates the importance of the body, and lacks information as to the function or the role of past experiences in emotion. Griffiths (2004) more recently indicated that modern considerations of emotion should be subcategorised into affective states that serve primitive instincts and higher order cognitive emotions. Yet, this adds little clarity as difficulties exist in trying to disentangle primitive and higher order emotions (Buck, 1990; Izard, 2007).

It thus became apparent that a universally accepted definition of emotion was elusive (Izard, 2010). A concern was that such conceptual uncertainty could hinder research efforts and attention towards the study of emotion (Gross, 1999; 2014). Izard (2010), however, developed a composite definition using the novel approach of combining descriptions of emotion from contemporary researchers. These definitional features were that emotions involve a system of physiological responses, induce feeling states/processes that motivate, organises cognition and

our actions. This definition was adopted by the current thesis as it was drawn from views of contemporary scholars and is consistent with others in the literature (i.e. Robertson, Daffern & Bucks, 2012). The role of cognition in emotion is considered next.

4.3 Cognition and emotion

The relative contribution of cognition to emotion remains contested (Omdahl, 2014; Power & Dalgleish, 2007). Some researchers (i.e. Lazarus, 1991; Schacter & Singer, 1962) have emphasised a central role, whilst others have maintained that cognition and emotion are unrelated (i.e. Zajonc, 1980). According to Zajonc's (1923-2008) Affective Primacy Hypothesis, emotions are evoked prior to cognition and with limited cognitive processing. Several empirical studies supported this by indicating that repeated exposure of an object increased its favourability in the absence of its conscious recognition (Murphy & Zajonc, 1993; Williams *et al.*, 1997; Zajonc, 1980). However, Zajonc's perspective and many of its studies have their critics (see Eysenck & Keane, 2000; Tsal, 1985).

Nonetheless, Zajonc's notion of affective priming has yielded much interest in the aggression literature particularly in relation to the under- and over-control of emotion. This literature is discussed later in this chapter because of its links to the role of cognition in the regulation of emotion. Williams and colleagues (1997) highlighted how Zajonc's research encouraged interest in sub-conscious cognition and emotion (Todd, 2013). They considered that a simple reformulation of his hypothesis that emotion could be independent of conscious cognition would have perhaps received greater acceptance in the literature (Williams *et al.*, 1997).

In contrast, the *Cognitive-Motivational-Relation* theory of emotion (Lazarus, 1991) describes how functional relationships exist between cognition, motivation and emotion. Lazarus and Folkman (1987) argued that emotions concern person-environment relationships, which involve appraisals of harm (for negative emotions) and benefits (for positive emotions). Thus, cognition always precedes physiological arousal or emotion, thereby emphasising a central role for cognitive appraisal in emotion.

According to Lazarus (1991), cognitive appraisal encapsulates an individual's interpretive evaluation of an event or feeling state prior to ensuring its comprehension. Appraisals can be conscious or subconscious and become autonomous over time. Primary appraisals concern evaluations of events in terms of relevance, harmful or beneficial, or concerns regarding a

particular goal. Secondary appraisals account for individuals' resources, options and prospects for coping with the event. These appraisals thus involve considerations of blame or credit, directions of responsibility, coping potential and future expectations. Finally, re-appraisals concern the monitoring of a stimulus event and coping resources, with primary and secondary appraisals being altered accordingly (Omdahl, 2014; Smith & Kirby, 2009).

Smith and Lazarus (1993) argued that emotional states are distinguished on the basis of which appraisal components are involved. Emotions, such as anger, guilt, sadness, anxiety and stress, all concern primary appraisals and occur in response to a blocked goal or goals. However, emotions differ with regards to their secondary appraisals. For instance, *guilt* was considered to involve appraisals of self-accountability, *sadness* associated with cognitions regarding the low expectancy for immediate or future change, or indeed *anger* to prevent irreparable, interpersonal harm. However, I will return to cognitive appraisal later in this chapter through discussion of emotion regulation and its links to aggression.

The role of cognition in emotion was also emphasised by Schachter and Singer's *Two-Factor Theory of Emotion* (1962). This theory can be dichotomised into: (i) the required components of an emotional state; and, (ii) the processes that underlie emotion generation. According to this theory interactions between physiological arousal and cognitions (concerned with the arousing situation) are the necessary components of our emotional experiences. Schachter and Singer (1962) proposed that physiological arousal is non-specific in nature and determines the *intensity* of an emotional state whereas it is cognitions that influence *which* emotion is experienced.

Schachter and Singer (1962) specified two generative pathways, one for everyday life and another for unexplained emotions. Yet, both conceivably involve perception, appraisal of arousal and the situation (Wyer & Srull, 2014). In line with this, Gordon (1978) argued two cognitions are required to experience emotion. One being an appropriate emotion cognition and another regarding its cause or attributional interpretation of the emotional state. There is mixed evidential support for the two-factor theory of emotion in the literature. Some studies have partly confirmed cognition and physiological arousal as the necessary components of our emotional experiences (Marshall & Zimbardo, 1979; Mezzacappa, Katkin & Palmer, 1999). Support for their pathways of emotion generation was also found (Sinclair *et al.*, 1994). Other research does not provide such favourable support through failings to replicate the results

from supportive empirical studies or even finding contradictory outcomes (Erdmann & Janke, 1978; Wyer & Srull, 2014).

According to Parkinson (1997), the legacy of the Schachter and Singer's (1962) theory is the predominant influence of cognition in the study of emotion. The view that emotion is post cognitive he considered was the most popular attitude among emotion theorists (Parkinson, 1997; Wyer & Srull, 2014). Over the last decade limited research has attempted to address directly the conflicting evidential picture presented by the Two-Factor Theory. Instead, research attention has focused on individual or peripheral concepts within the theory, such as the role of emotional arousal on cognition and behavioural functioning, cognitive appraisal of situations, and the regulation of emotion (Power & Dalgleish, 2007; Wyer & Srull, 2014). The role of cognition and emotion with regard to aggression is discussed next.

4.4 Aggression, cognition and anger

According to *Discrete Emotions Theory* (Lench, Flores & Bench, 2011), the number of primary/basic emotions is genetically determined and a product of evolution. These emotions organise an individual's adaptive responses including his or her cognitive, physiological and behavioural responses, to his or her environment. It is argued that other emotions are blends of these basic emotions. Another assumption is that such basic emotions are culturally universal. A detailed review of this literature and supporting studies is provided by Lench *et al.* (2011).

Tomkins (1963) indicated that eight basic primary emotions exist such as surprise, interest, joy, rage, fear, disgust, shame and anguish, all of which are consistent across cultures. Ekman and Friesen (1975), however, identified only six basic emotions namely surprise, fear, disgust, anger, happiness and sadness, with Plutchik (2000) identifying eight emotions inclusive of Ekman and Friesen's (1975) six emotions with the addition of acceptance and expectancy. In their review, Lench *et al.* (2011) indicated that across all distinct theories between six to ten basic emotions are identified and that are postulated to influence an individual's functioning.

Steffgen and Gollwitzer (2007) stated that a number of emotions are capable of amplifying, moderating, and triggering or could even be the goal of aggression. For some time anger has empirically and theoretically been linked to aggression (Baumeister & Bushman, 2007; Berkowitz, Lepinski, Angulo, 1969; Ireland, 2009; Megargee, 1966). The importance of

considering other emotions such as shame or fear, and not over-stating the influence of anger on aggression, is well recognised (Baumeister & Bushman, 2007; Davey, Day & Howells, 2005; Ireland, 2008; 2011). Yet, anger remains the most studied emotion with regard to aggression (Robertson, Daffern & Bucks, 2012).

Spielberger (1991; 2009) defined anger as an emotional state varying in intensity of feeling from states of agitation to rage. Anger has some adaptive qualities such as promoting goal achievement and motivation (Nicoll, Beail & Saxon, 2013), although its maladaptive expression and disproportionate influence on event reactions often remain the focus of research attention (Novaco & Chemtob, 1998). There is much conceptual overlap between anger and aggression; with anger often being accompanied by tendencies towards aggression, and aggressiveness linked to propensity for anger (Robertson *et al.*, 2012).

Research studies with both general and offending populations have confirmed the association between anger and aggression (Battencourt *et al.*, 2006; Chemtob, Novaco, Hamada & Gross, 1997; Davey, Day & Howells, 2005; Robertson *et al.*, 2012; Watt & Howells, 1999). For example, in a study of 40 male young prisoners, McDougall, Venables and Roger (1991) found aggression was associated with elevated trait anger and use of rumination as an emotional control strategy. This highlighted the importance of anger and cognition in aggressive behaviour. However, anger and aggression can occur in the absence of one another, suggesting they are not entirely interdependent, and could be mediated by another factor such as underlying motivation (Averill, 1983; Ireland, 2011). Empirical examinations of emotion, motivation and aggression, however, remain under-explored, particularly amongst prisoners (Davey, Day & Howells, 2005; Robertson *et al.*, 2012).

Two primary mechanisms are thought to underpin the association between anger and aggression, namely cognition and physiological arousal. For instance, the model of anger offered by Novaco (1978; 1997; 2011) articulated a clear relationship between anger and aggression, describing this as an interaction between external events, cognition and physiological and behavioural factors. Novaco (1978; 1997; 2011) indicated that it was an individual's interpretation of aversive situations through cognitive scripts and schemas that mediated the transformation of social information to physiological arousal and then aggression. This was consistent with Schachter and Singer's (1962) Two-Factor Theory of Emotion relating to the role of cognition and emotion, whilst also emphasising their further

links to aggression through the influence of arousal and social information-processing.

A further theory that emphasises the role of emotional arousal in aggression is the *Frustration-Aggression Hypothesis* (Dollard *et al.*, 1939). This asserts that perceived hindrance towards the accomplishment of a desired goal creates negative affect that leads to aggression. This can either be directed at the source of the frustration or displaced onto a substitute target. The resulting aggression is mediated by the strength of the blocked drive towards a goal, the degree of interference with this drive, and the number of frustrated cycles (i.e. the number of stimuli to evoke a physiological state of arousal, followed by a decline in arousal, and then reactivation of arousal via a situational trigger) experienced by the individual (Dollard *et al.*, 1939). There is some evidential support for this theory in the early literature (e.g. Anderson, 1997; Barker *et al.*, 1946; DeWall *et al.*, 2010).

Barker, Dembo and Lewin (1941), for instance, conducted a study whereby thirty children were allowed to play with desirable toys immediately, whilst another group had to stand outside and watch. When finally allowed inside to play with the toys, the second group engaged in more aggressive behaviour such as throwing the toys around and breaking them. They concluded that frustration lead to the children's destructive play. However, later studies (i.e. Child & Waterhouse, 1952) failed to replicate these findings, whilst others challenged their interpretations, arguing that lowered constructiveness in the frustration situation may have caused the heightened emotional behaviour rather than frustration *per se* (Davis, 1958).

Further supportive evidence was generated by Doobs and Spears (1939), who found that *imagined frustration* increased drives towards aggression in a sample of 185 mixed (men and women) undergraduate students. Bushman (1993; 1997) also found that alcohol and drug consumption increased aggression facilitating factors, particularly feelings of frustration. However, he concluded that a more indirect association exists between alcohol, frustration and aggression. This view was supported in a more recent study by DeWall, Bushman, Giancola and Webster (2010). They conducted two independent experiments (n=553 and 327 respectively) where participants consumed alcohol or a placebo, and then engaged in an aggression task in which they could administer electric shocks to a fictitious opponent. They found aggression was predicted by physical size through interaction with alcohol use, frustration and gender. Larger intoxicated men were more likely to display frustration and aggression, according to this study. Yet the experimental methodology utilised in this study

raises questions as to the ecological validity of these findings in real world contexts (Coolican, 2014).

Critics of the frustration-aggression hypothesis, however, argue that it is oversimplified and its main theoretical assertion is challenged by evidence that not all frustrations from blocked goals lead to some form of aggression (Bandura, 1973; Zillmann, 1979). It is equally argued that not all aggressive acts originate from an antecedent that involves frustration (Baron, 1973). Indeed, a range of other emotions have been linked with aggression, including fear (Bitler, Linnoila & George, 1994; Ireland, 2011), shame (Elison, Garofalo, & Velotti, 2014), pain (Berkowitz, 2012), unhappiness (Spratt & Doob, 2000), jealousy (Edalati & Redzuan, 2010), loneliness and low self-esteem (Blossom & Apsche, 2013; Buelga, Musitu, Murgui & Pons, 2008), as well as general negative affect (Caprara *et al.*, 2001).

A more recent reformulation of the frustration-aggression hypothesis was provided by Berkowitz's *Cognitive Neoassociation Theory* (1990, 2012). Berkowitz argued that aversive events lead to aggressive inclinations and actions through associated cognitive and physiological networks. He suggests that a wider range of emotions could instigate aggression through activated a negative affective state. According to this theory, aggressive thoughts, emotions and behaviours were linked through associative pathways in memory (Anderson & Bushman, 2002; Collins & Loftus, 1975). Berkowitz (1989, 1990) also asserted that learning experiences would likely influence the process of attributing meaning to the situation and the retrieval of associated cognitions. Over time, therefore, associations between negative emotion and cognitions possibly increase the potential for aggressive actions, which according to this theory are linked to their frequency of activation and availability in memory.

Evidential support for Berkowitz's reformulation, however, remains mixed. For instance, in a now classic experiment by Berkowitz and LePage (1967), 100 undergraduates provided fictitious electric shocks towards a peer under conditions that either did or did not include the presence of a weapon. They found that the presence of weapons increased responsive aggression against the weapon holder due to the association between weapons and aggression in semantic memory. It is noteworthy that other attempts to replicate these findings exactly were unsuccessful (i.e. Frodi, 1975). Some have argued that this could be associated with methodological differences such as a participant's levels of suspicion and experimenter demands (Carlson *et al.*, 1990).

Berkowitz (1989) and others (Anderson & Bushman, 2002) cautioned that perhaps the Neo-Association Theory is better suited to explaining more reactive rather than instrumental forms of aggression (see Chapter 2), as they argue that it experiences great difficulty in explaining how some individuals have been found to utilise aggression as a cathartic function to dissipate negative affective states (Gardner & Moore, 2008; Geen, 1990). Nonetheless, the value of these theories (Frustration-Aggression and Cognitive Neo-Association) centres on their integration of emotion and cognition towards an intrinsic state that promotes aggression (see Chapter 2). Magargee (1966, 2011) also emphasised emotion as important in aggression, focusing particularly on its experience and control by the individual namely, its *regulation*. The regulation of emotion and its links with aggression are discussed next.

4.5 Aggression, emotion transfer, and regulation

Initial focus on the regulation of emotion concerned the reduction of negative emotions through behavioural or cognitive control (Gross, 2014). This has since been expanded to consideration of both conscious and unconscious processes that amplify or reduce both positive *and* negative emotions (Gross & John, 2003; Gross, 2014).

There is now increased acceptance that emotion can be regulated in many ways (Gross, Richards, & John, 2006). The *Modal Model of Emotion Regulation* (Gross & Thompson, 2007) incorporates principles from recognised theories of emotions such as cognitive appraisal, and details the possible sources of regulation. This model is presented diagrammatically in Figure 4.1.

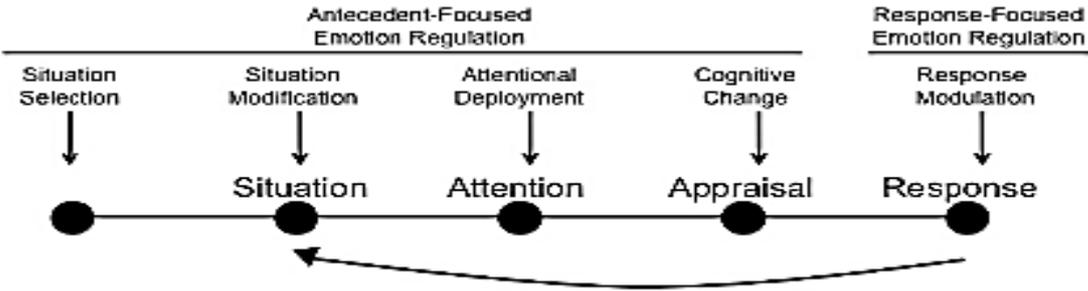


Figure 4.1: Gross and Thompson’s (2007) modal model of emotion regulation domains

Regulation through *situation selection* was described as the process of taking proactive action to increase or reduce the likelihood that a particular emotion (both positive and negative) is

experienced (Gross, 2014). Examples include avoiding an offensive person or seeking another for support at times of negativity. *Situation modification* approaches encapsulate efforts to change situations as they arise. Gross (2014) described how these concern altering the external physical environment immediately prior to its experience. Examples could include removal of a frustrating task or problem, asking an offensive person to leave or removing oneself from a particular situation.

Attentional deployment concerns intrinsic regulation where individuals may direct their attention in a given situation to influence their emotional experience (Gross, 2014). Two major forms of attentional deployment exist, namely distraction and concentration. *Cognitive change* refers to the regulatory changes made through appraisal or reappraisal of an external situation or an internal state to increase or decrease emotional arousal. This could take the form of either changing cognitions regarding the emotion provoking situation or through one's personal resources for dealing with a particular situation (Samson & Gross, 2012).

The final domains of regulation approaches, termed response modulation, occur after responses are initiated. These response-focused regulatory strategies serve to directly influence the experiential, behavioural or physiological components of emotions. Some examples of these regulatory approaches include post activation physical exercise or structured relaxation approaches, such as deep-breathing or relaxation. Expressive suppression is another well-researched example, which involves a person attempting to inhibit continuing negative or positive emotion-expressive behaviour (Gross, 2014).

Gross (2002) said that it was unlikely that any one regulation approach is capable of being the panacea for healthy emotional functioning. The effectiveness of each regulation strategy is dependent on a number of individual and contextual factors (Gross, 2014). Regulation strategies are, therefore, neither inherently adaptive nor maladaptive (Gratz & Roemer, 2004; Robertson, *et al.*, 2012). It is argued that effective emotional functioning is the result of flexibly choosing between a range of regulation strategies in response to differing contextual demands (Kashdan & Rottenberg, 2010; Shepps, Scheibe, Suri & Gross, 2011).

According to Shepps *et al.* (2011) all emotion regulation strategies have a differential cost-benefit 'trade-off', with greater perceived benefits resulting in strategy choice and motivation towards the achievement of the regulatory goal/s identified. This suggests that motivation and

decision making are key factors in emotion regulation and consequent actions (Shepps *et al.* 2011; Tamir, 2009).

Gross (2014) said that the contrast between emotion under- and over-regulation, and regulatory strategies of cognitive reappraisal and suppression has received the most research attention. To consider strategies in the first instance, suppression involves the individual actively attempting to inhibit their ongoing emotions and express their emotional-behaviours. Cognitive reappraisal involves regulation through reinterpretation and re-evaluation of the meaning attached to the emotional stimuli (Gross, 2014). When directly compared with suppression, studies of cognitive re-appraisal suggest it is a more effective regulatory approach for both positive and negative emotions (Gross & John, 2003; Richards & Gross, 2006; Roberts, Levinson & Gross, 2008; Szasz, Szentagotai & Hofmann, 2011).

In a meta-analysis of 306 individual studies, Webb *et al.* (2012) found that expressive suppression had no effect on emotional outcomes. Response modulation and cognitive change strategies such as re-appraisal had small to moderate effect sizes respectively. Timing differences in the application of strategies were indicated. For instance, reappraisal of responses was not as effective as reappraisal of the emotional stimulus. Significantly, Webb *et al.* (2012) also found in their aggregated data that the effectiveness of strategies was dependent on: (i) the emotion to be regulated; (ii) the frequency of their application and motivation/goals for regulation; and, (iii) study designs and methodologies.

Webb *et al.*'s (2012) finding that certain characteristics, such as the individuals' personal goals or motivation and a study's methodology, are capable of influencing the effectiveness of emotion regulation is an important one. Especially as empirical studies of emotion regulation and behaviour remain confined to certain populations, primarily children and non-offending samples. Few studies have explored emotion regulation strategies used by offenders or have fully examined its association with aggression motivation (Davey, Day & Howells, 2005; Ross, 2008; Robertson *et al.*, 2012). This is surprising given that Megargee (1966, 2011) and others (Berkowitz, 2012; Novaco, 2007) argued that aggressors are distinguishable, based on their tendencies towards the management of emotion (i.e. the under and over-controlled aggressor, see Chapter 2).

A review of all published studies examining aggression and emotion regulation with offenders

yields only a few examples. Heinzen *et al.* (2011) for instance, explored the use of emotion regulation strategies in a sample (n=104) of young offenders with emerging psychopathic personality traits. They found psychopathy to be highly related to the application of maladaptive emotion regulation strategies and custodial behaviours, including aggression. This was a consistent finding across the three personality facets examined (grandiose/manipulative, callous/unemotional, impulsive/irresponsible), and no differences were found for individual emotional states (sadness, anger and anxiety). They concluded that this study highlighted associations between emotion dysregulation, socially interfering personality traits and maladaptive behaviour.

A study by Tager, Good and Brammer (2010) explored emotion regulation, normative beliefs and partner aggression in a sample of 108 men. Regression analyses undertaken indicated that emotion dysregulation explained the largest proportion of the total variance (18%) in reported aggression. When combined with beliefs supporting use of aggression in relationships, this increased and explained 25% of the variance. Tager *et al.* concluded that emotion dysregulation in perpetrators was a significant risk factor for partner aggression. However, the authors acknowledged several limitations of this study, including its correlation nature resulting in difficulties with establishing causality between variables. In this study limited information was also noted concerning the precise nature of the sample, their histories and how they were accessed. This could perhaps question their classification as an offending sample.

Robertson *et al.* (2012) explored emotion regulation and more generalised aggression (rather than directed at a particular victim type as undertaken by Tager *et al.*, 2010) in a mixed sample of 64 offenders serving community sentences (81% were men). They utilised a self-report methodology via questionnaires (Life History of Aggression assessment, Coccaro, Berman, & Kavoussi, 1997; Difficulties in Emotion Regulation Scale [DERS], Gratz & Roemer, 2004) to explore the hypothesis that proficiency in adaptive emotion regulation was related to aggression. They found that emotionally dysregulated offenders had more extensive histories of habitual aggression. Regression analyses indicated that increased emotional awareness and perceived access to a range of regulatory strategies contributed most to adaptive emotion regulation. This study was, however, not without its limitations. For example, it utilised only three subscales of the DERS, which included the *perceived access to strategies* subscale. The use of this particular measure tells us little about the actual *nature* of emotion regulation

strategies utilised (i.e. suppression or reappraisal). It therefore limits the value of this study as a means of improving our knowledge of the emotion regulation strategies amongst offenders and how it links to aggression.

Over-regulation as well as under-regulation of emotion are also linked to aggression in both offending and non-offending populations (Megargee, 1966, 2011; Novaco, 2007; Robertson *et al.* 2014). A specific and detailed review of the over-regulation literature by Robertson *et al.* (2012) identified five functional pathways through which this could culminate in aggression namely, over-regulation could: (i) create an aggressive prone internal state; (ii) reduce self-control and inhibition; (iii) increase physiological arousal; (iv) influence decision making and information-processing; and, (v) diminish social networks. The empirical basis of these pathways is examined next.

Suppression as an emotion regulatory strategy was found to be the least effective at reducing negative affect (Gross & John, 2003; Webb *et al.*, 2012). This has parallels with the literature on thought suppression, where the inhibition of unwanted cognitions was found in fact to increase the frequency and intensity of such thoughts (Abramowitz, Tolin & Street, 2001). Szasz *et al.* (2011) examined both cognitive and emotional suppression, and found that experimentally induced state anger was greater in participants who suppressed. Their findings suggest that over-regulation of both emotion and cognitions may create a negative internal state. According to the General Aggression Model (GAM: Anderson & Bushman, 2002, see Chapter 2) an aggression prone internal state can instigate aggressive actions. Thus, the creation of a particular internal state through over-regulation may increase the likelihood of aggression (Robertson *et al.*, 2012).

Suppression of emotion was ironically found to increase rather than decrease physiological arousal (Roberts, Levinson & Gross, 2008). For individuals predisposed to aggression an increased state of physiological arousal may elevate their risk of aggressive action (Anderson & Bushman, 2002; Ward *et al.*, 2008). This is another pathway through which over-regulation can culminate in aggression (Robertson *et al.*, 2012). This view has similarity to Zillmann's *Excitation Transfer Theory* (1972, 1998; Bryant & Miron, 2003), which showed that as physiological arousal dissipates slowly, residual excitation from one stimulus will amplify an excitatory response to another. In this theory, arousal arises from both negative and positive experiences to heighten physiological arousal, which can then be misattributed and transferred

to other stimuli (Bryant & Miron, 2003; Geen, 1990). Therefore, inhibited aggression-arousal from one event can influence the labelling and amplification of aggression-arousal of a secondary event (Anderson & Bushman, 2002).

There is support in the literature for the principles of arousal transfer culminating in aggression. For instance Taylor *et al.* (1991) synthetically stimulated the sympathetic nervous system of some participants with caffeine (n=31) and others with a placebo (n=31). Both groups were then provoked by a confederate. An elevated level of aggression was reported in participants who had received the stimulant. As the participants in this condition were unaware they had been given the arousing drug, Taylor *et al.* (1991) concluded that their synthesised arousal was transferred to aggression under provocation. Geen (1990), however, pointed out that much of Zillmann's theory and supporting research has focused on anger arousal. Examination of the role of other emotions and their contribution to aggressive actions through arousal transfer remains more limited.

The third pathway identified by Robertson *et al.* (2012) was that over-regulation might reduce cognitive resources and information processing abilities resulting in decisions that favour aggression. This view is strengthened by evidence that certain emotion regulatory approaches impact on cognitive capacity and memory (Richards & Gross, 2006). Use of suppression has also been associated with biased information processing (Pennebaker & Susman, 1988; Schmeichel, Vohs & Baumeister, 2003) and reduced behavioural performance during complex tasks (Wallace, Edwards, Shull, & Finch, 2009). Links between biased information processing and aggression have long been established (see Chapter 2).

Another pathway identified was that over-regulation could reduce possible inhibitors for aggression. Robertson *et al.* (2012) argued there are considerable conceptual overlaps between emotion over-regulation and Baumeister's (1990) notion of *Cognitive Deconstruction*. By definition, Cognitive Deconstruction is the attempted refusal of meaningful thought, particularly with reference to integrative or interpretive cognition (Baumeister, 1990). To avoid experiencing a psychologically aversive state charged by negative emotions, an individual may engage in thought processes that are less meaningful. According to Robertson *et al.* (2012) this rejection of meaningful thought may allow an individual to avoid negative emotional experiences or reduce the influence of aggression inhibitors.

The eight specific characteristics of cognitive deconstruction described by Baumeister (1990) include cognitive immediacy, procedure orientation, passivity and impulsivity, close-mindedness, inconsistencies, inhibition, lack of empathy and cognitive vulnerability. These characteristics may work in various ways to facilitate aggression (Crescioni & Baumeister, 2009). For instance, DeWall and Baumeister (2006) argued that empathic concern is an important motivator of pro-social behaviour: any decrease in these abilities could have consequences for an individual's willingness to engage in aggression. Stucke and Baumeister (2006) also described how cognitive deconstruction creates impaired self-regulation that must be addressed by an external motivator in order to be improved. Impaired self-regulation could result in aggression due to difficulties in managing aggressive urges or inclinations.

The final pathway identified was that over-regulation diminishes social networks and may increase sense of rejection, social exclusion and aggression (Robertson *et al.*, 2012). Appropriate emotional expressions are often a core element of social interaction, and the ability to regulate emotion effectively is often essential for social relationships (Butler *et al.*, 2003; Gross & Munoz, 1995). Research has begun to reveal that social rejection or alienation is associated with an increased risk of aggression in forensic and non-forensic samples (Dodge *et al.* 1990; Sampson, Twenge, Baumeister, Tice & Stucke, 2001). Conversely, following initial rejection there is evidence that increased positive social connectedness reduces aggression (Twenge *et al.*, 2007).

A number of mechanisms are suggested as to why social rejection could influence aggression. Rejection was found to be related to social and emotional 'numbness' (Twenge *et al.*, 2007). Such 'numbness' could decrease a rejected individual's ability to empathise with the pain of others or to appreciate the seriousness of aggressive actions, as they often perceive life as less meaningful (DeWall & Baumeister, 2006; Mascaró *et al.*, 2004; Stillman *et al.*, 2009). Social alienation was found to heighten an individual's levels of hostility towards others and lower his or her sense of belonging to shared social norms or values including those that may inhibit aggressive or anti-social actions (Twenge *et al.*, 2002). Aggression could also be functionally adaptive and provide the rejected individual with desired attention, thus satisfying an underlying need (Warburton *et al.*, 2006; Williams, 2007).

In summary, a range of regulatory strategies and approaches are implicated for their influence on experienced emotions and their effect on resulting behaviours such as aggression.

Cognition is emphasised for its pivotal influence in many of the theories (Huesmann, 1998; Novaco, 2011) linked to emotions, emotional regulation and emotional transfer. This includes the role of cognitive schemata. According to Beck and Freeman (1990) schemata have both cognitive and affective components, and are capable of motivating or inhibiting behavioural actions. They are thus highly relevant to the current discussion and are examined next.

4.6 Aggression, cognitive schema and emotion

The GAM (Anderson & Bushman, 2002) and other theories (e.g. Huesmann, 1998) emphasise the role of social cognition and information processing deficits in aggression. Huesmann's (1998) reformulation of earlier frameworks (Crick & Dodge, 1994) highlighted the role of both cognition and affect at each stage of information processing (see Chapter 2). Emotional arousal is known to influence negatively social information-processing abilities (Harper, Lemerise, & Caverly, 2010; Ireland, 2011). Historically, aggression was viewed as maladaptive and linked to associated cognitive processing deficits. Yet, recently there is increased acknowledgement that some forms of aggression are adaptive and facilitated by well-developed underlying social cognitive skills (Bennett, Farrington & Huesmann, 2005; Ireland, 2011). There are thus clear conceptual and theoretical overlaps between emotion, cognition and aggression.

Schemata are stable cognitive structures deemed responsible for information processing and contextual appraisal. They evaluate incoming environmental data and trigger a response to implement a particular affective strategy or behaviour action (Beck & Freeman, 1990; Huesmann, 1998; Kelly, 1955; Young, Klosko & Weishaar, 2003). According to Beck and Freeman (1990) schemata generate affect capable of motivating or inhibition behavioural action, which could include aggression. Schemata primarily concern attitudes relating to the self and others, which influence individuals' personal relationships and approaches impersonal or inanimate objects. For instance, two types of schemata often linked to aggression are 'hostile world' (Anderson & Carnagey, 2004) and 'narcissism-related' (Anderson *et al.*, 2007; Milner & Webster, 2005).

Young *et al.* (2003) built on this by advancing Beck and Freeman's theory (1990) through consideration of *early maladaptive schemata* and their influence upon affect, information processing and behavioural functioning. According to Young *et al.* (2003), early maladaptive schemas originate from unmet core emotional needs or significant trauma in childhood (see

Chapter 3). They theorised that early maladaptive schemata are at the core of personal and interpersonal functioning difficulties, such as aggression, through their generation of unhealthy coping mechanisms, dysfunctional beliefs and their consequent actions. It is also described how certain developmental experiences are critical and when combined with cognitions such as hostile attribution biases significantly enhance the explanatory value of this theory beyond what is achieved from either the developmental or preceding cognitive theories in isolation. Thus, developmental experiences are crucial for understanding the creation and specific nature of cognitive schemata.

Young *et al.* (2003) contended that early maladaptive schemata are present in normative populations but are exaggerated and more pervasive amongst more extreme samples such as offenders. It is argued that adaptive and maladaptive schemata exist, yet maladaptive remains the subject of most concern with regard to negative behaviour. Young *et al.* (2003) identified eighteen maladaptive schemata represented within five distinct domains namely, disconnection and rejection, impaired autonomy and performance, impaired limits, other directedness, and overvigilance or inhibition. They argued that such schemata characteristically influence affect and interpersonal functioning in predictable ways.

The central limitation of schema theory (Young *et al.*, 2003), as applied to affect and behavioural functioning, is that given its more recent formation, several of its underlying assumptions are yet to be subjected to empirical scrutiny. Nonetheless, some empirical support exists and the concept of both adaptive and maladaptive schemata continues to expand in the literature. For instance, using self-report questionnaires (Ball & Young, 2000; Calvete & Estevez, 2005; Young & Brown, 1990), several studies have reliably confirmed the validity of the model and early maladaptive schemata to personality and interpersonal functioning (Wilks-Riley & Ireland, 2012; Young *et al.*, 2003).

The value of the theory and importance of schemata in relation to personality disorder, substance misuse and psychopathologies such as depression has also been established (Halvorsen *et al.*, 2009; Hawke & Provencher, 2013; Young *et al.*, 2003). Yet, the role of early maladaptive and adaptive schemata in relation to aggression has received limited investigation (Gilbert *et al.*, 2013). This is despite contentions and theoretical overlaps between schemata and hostile attributions, reduced self-control and anger activation (Anderson & Bushman, 2002; Ball & Cecero, 2001, Calvete, Estevez, Lopez de Arroyabe, &

Ruiz, 2005) and its clear development through exposure to adverse childhood experiences. Moreover, very few studies have explored early maladaptive or adaptive schemas among offenders or fully considered their association with aggression.

An exception to this was the study by Milner and Webster (2005) who examined early maladaptive schemata in a sample of 12 violent offenders: 12 adult rapists and 12 child sexual abusers. Using a self-report questionnaire they found key differences including that violent offenders and rapists presented with more elevated rates of hostile, grievance and mistrustful schemata than other types of offenders. However, this study solely focused on differences in cognitive schema between offenders. Thus, the possible associations between early maladaptive schemata, information processing, affect or behaviours other than delinquency, were not tested.

Tremblay and Dozois (2009) also explored early maladaptive schemata and aggression in a non-offending mixed sample of 848 students (543 women and 304 men). Using self-report measures they found 10 early maladaptive schemata had positive relationships with aggression, although those with the strongest association were mistrust and abuse, insufficient self-control and entitlement. They concluded that their findings were consistent with several other results in the aggression literature, such as mistrustful schemata with hostile attribution biases (Geen, 2001), or entitlement schemata as related to the motivational function of coercive action addressing perceived injustice and restoring self-esteem (Tedeschi & Felson, 1994). Yet, this study focused exclusively on maladaptive schemata in a non-offending sample, and thus adds limited insight into adaptive schemata or the schemas in more challenging samples.

The most recent study in schemata and aggression in offenders was conducted by Gilbert, Daffern, Talevski and Ogloff (2013). Eighty seven offenders (78 men and 9 women) referred to community forensic mental health services completed self-report questionnaires relating to aggression history, anger, aggressive attitudes and early maladaptive schemata. Analyses indicated that five early maladaptive schemata, namely insufficient self-control, dependence, entitlement, social isolation and failure to achieve, were positively linked to aggression. Regression analyses also indicated that no individual schemata contributed to aggression beyond its combined influence with other aggression-related variables examined, such as pro-aggressive cognitions or anger.

Gilbert *et al.* (2013) concluded that their evidence supported the notion that certain schemata are linked to aggression through connection with other variables such as cognition and affect, and by the creation of an internal state and aggressiveness tendencies. This is consistent with the principles emphasised by the GAM (Anderson & Bushman, 2002) and highlights the importance of capturing a range of developmental, cognitive and affect variables in any exploration of aggression among offender samples. However, Gilbert *et al.*'s study has several limitations such as the following: it focused on historical rather than more recent acts of aggression, its sample comprised offenders only serving sentences in the community and it focused on maladaptive (and not adaptive) schemata. These potentially undermine the generalisability of these results and conclusions to wider offending populations. Despite this, the contribution of this study to the literature is that it highlights the potential importance of cognitive schemata in aggression. It further demonstrates the need to consider other variables associated with cognition, affect and aggression such as underlying motivation.

4.7 Concluding comments

Research has indicated an important role for emotion, including its regulation and transfer to situations, in understanding aggression, and further highlighting how cognition is inextricably linked. Anger is the emotion most frequently studied in terms of aggression, with its under-regulation the focus of early research followed by some more recent consideration towards over-regulation (Megargee, 1966; Robertson *et al.*, 2012). Anger is described as an adaptive and maladaptive emotion depending upon its context of use and socio-cognitive characteristics (McDougall, Venables, & Roger, 1991; Novaco, 2011).

Emotions such as anger can be regulated at varying points along their generative and experiential journey (Gross & Thompson, 2007). Certain strategies such as cognitive reappraisal were shown to be more effective than others such as suppression (Gross & John, 2003). Effective emotional functioning centres on one's capability to apply a range of strategies dynamically and flexibly (Kashden & Rottenberg, 2010). Difficulties in this regard are linked to a range of behaviours including habitual aggression (Robertson *et al.*, 2012).

Emotion regulation approaches have however received little research attention in specific populations such as offenders (Gross, 2014; Ross, 2008). There is equally limited attention in terms of affect regulation strategies within integrated models of aggression. This is despite many richly overlapping concepts with underlying motivation, social-cognition and

developmental experiences (Sheppes *et al.*, 2014; Webb, Miles & Sheeran, 2012; Young *et al.*, 2003). The studies which have been undertaken with offenders (i.e. Robertson *et al.*, 2012) are limited having only considered a narrowed aspect of emotion regulation (perceived access as opposed to the actual strategies utilised). Thus, our knowledge and research are lacking on the application of emotion regulation theory and principles to aggression motivation.

Young *et al.*'s (2003) socio-cognitive theory described how elements of importance to aggression such as developmental experiences and affective functioning are associated through cognitive schemata. Research investigation regarding the influence of early maladaptive schemata on offenders' affective and interpersonal functioning is scarce. There also remains a focus on the influence of negative schemata on behaviours thus ignoring positive schemata. Due to the clear conceptual overlap between these concepts, and the fact that existing models of aggression fail with their detailed integration, further consideration of their influence on aggression and its motivation is an avenue worthy of further research attention.

An enduring factor linked to aggression is personality (Plutchik, 2003; Patrick, 2007). In the aggression literature, it has been indicated that both personality and emotion are capable of impelling or inhibiting aggression (see chapter 2 and discussions of the General Aggression Model [Anderson & Bushman, 2002]). The next chapter, therefore, considers the role of personality in emotion and aggression.

Chapter 5

PERSONALITY, AGGRESSION AND INHIBITION

5.1 Structure of the chapter

Attention in this chapter is first briefly given to defining personality. This is followed by a review of prominent trait theories including the five-factor model (McCrae & Costa, 1985). Detailed discussion follows on the literature concerned with aggression and personality traits. Finally, the notion of self-control and inhibition as applied to personality and aggression draws the chapter to a close.

5.2 Personality traits and aggression

There is limited consensus on a precise definition of personality (Engler, 2009, Ryckman, 2012), although there is some consensus on the fact that it is a ‘mental system’ or collection of psychological patterns inclusive of cognitions, motives, emotions and behaviours that characterise the individual across time and place (Eysenck, 2013; Mischel, 2013). Ryckman (2012) for instance defined personality as

“...the dynamic and organised set of characteristics possessed by a person that uniquely influences his or her cognitions, motivations and behaviours in various situations.” (p. 4).

It is commonly accepted that personality relates to enduring elements of an individual character and thus represent traits (Allport, 1937). Allport (1937) viewed personality traits as unique to the individual and as guides to action. Warren and Carmichael (1930) also indicated personality is constructed throughout the course of one’s life, thereby recognising a relationship with development. Its link to behaviour is also well recognised, with Mayer (2005) arguing that personality is expressed through its influence on an individual’s psychological state, physiologically on his/her body and social behaviours. This is supported by evidence that personality is associated with a range of observed behaviours including delinquency and aggression (Eysenck, 2013).

The term *functional autonomy* was utilised by Allport (1937) to emphasise his view that behavioural motivation occurs independently of past experiences. He also stressed the relationship between motives and cognitive processes in personality functioning. Allport's personality theory was an expansion on his trait definition including additional notions such as: (i) common traits exist, yet everyone's composition is unique; (ii) traits can function similarly to behavioural habits and attitudes; (iii) all traits are largely inter-dependent; and, (iv) traits determine behavioural functioning and adjustment to our environment (Allport, 1937; Engler, 2009).

The Five Factor Model (FFM) of personality (Costa & McCrae, 1995), derived from the lexical hypothesis, remains the most commonly applied model to complex behaviours including aggression (Jensen-Cambell & Graziano, 2001; Megargee, 1970; Miller & Lynam, 2003). It considered five personality dimensions (referred to as the 'Big Five') comprising other associative traits. The 'Big Five' personality dimensions include: *Openness* defined as having appreciation for art, adventure, curiosity and variety of experiences; *Conscientiousness* defined as the tendency to show self-discipline, control over impulses, organised and dependable as opposed to spontaneous; *Extraversion* defined as proneness to positive emotions and sociability; *Agreeableness* defined as the tendency to be compassionate, cooperative and empathetic; and, *Neuroticism* defined as emotional stability and adjustment.

McCrae and Costa's (2003) theory explained that similar to other defining individual characteristics, such as weight or height, their five personality traits are psychological structures that everyone has in varying degrees and are unaffected by environmental influences owing to their genetic basis (McCrae & Costa, 2003). A number of researchers have independently examined the validity of the FFM (Digman, 1989; McCrae & John, 1992; Peabody & Goldberg, 1989). Despite variant methodological approaches all found the 'Big Five' factors to be reliable, stable and their dimensional traits highly related. The five traits were also found to be stable from childhood into adulthood and it was argued that they psychological development (McCrae & Costa, 1992).

Applications of the FFM to aggression have produced some interesting findings, with the Neuroticism dimension found to be highly predictive of physical aggression (Gleason, Jensen-Campbell, & Richardson, 2004; Sharpe & Desai, 2001). However, mixed findings are reported for Extraversion and aggressive behaviour with some studies indicating a relationship, whilst

others did not (Sharpe & Desai, 2001). The Agreeableness, Conscientiousness and Openness dimensions were negatively linked to aggressive actions, which highlights a potential to influence self-control constructively (John & Srivastava, 1999).

A more recent study by Trninic *et al.* (2008) explored FFM traits and aggression in a sample of offenders (n=106) and athletes (n=109)⁴. Correlational analyses indicated differing relationships between traits and aggressiveness in both populations. For instance, significant moderate negative correlations were found between Agreeableness, Conscientiousness, Neuroticism and aggression in offenders, whereas significant, small to moderate negative correlations were found between Extraversion, Agreeableness, Neuroticism and aggression in athletes. However, causality can clearly not be inferred from these correlational investigations. Further regression analysis found that all traits except Agreeableness were significant predictors of aggression in offenders, whereas in athletes only Neuroticism was a significant predictor. These findings are generally consistent with other studies in general samples (i.e. John & Srivastava, 1999; Sharpe & Desai, 2001). Yet, the importance of this study lies in its indication that different traits underlie aggression in differing populations.

Another study finding different relationships between personality and triggers to aggression across samples was completed by Zajenkowska, Jankowski, Lawrence and Zajenkowski (2013). In a mixed sample of 300 students (189 women and 111 men) and 101 offenders (56 women and 45 men), Zajenkowska *et al.* found students' sensitivities to frustration and provocation was related to higher Neuroticism and lower Agreeableness, and sensitivity to provocation to lower Openness. Among offenders, however, lower Agreeableness was negatively linked to sensitivity to provocation. The authors concluded that their study adds to an understanding of the way personality traits can influence individual differences in perceptions of social stimuli and may result in readiness towards aggression. This has also been argued by other researchers (i.e. Ireland, Brown & Ballarini, 2006).

The General Aggression Model (Anderson & Bushman, 2002) indicates how certain traits influence aggressive behaviour through their impact on cognition and affect. In line with this, further links between certain personality traits and aggression are evident when additional variables are considered. For instance, Neuroticism was found to be positively associated with

⁴ The authors argued that these populations represented the most aggressive strands of the population, citing athletes for their competitiveness and offenders as an extreme sample.

vengefulness (McCullough, Bellah, Kilpatrick & Johnson, 2001), hostility (Sharpe & Desai, 2001) and irritability (Caprara, Barbaranelli, & Zimbardo, 1996), which are also related to aggression (Anderson & Bushman, 2002; Bushman, Baumeister & Phillips, 2001; Caprara *et al.*, 1987). In contrast, Agreeableness and Conscientiousness dimensions were negatively related to aggressive emotions and attitudes (Anderson, 2004). Thus, the direct and indirect relations between personality, cognition, affect and aggression are highlighted.

There are limitations of the FFM (McCrae & Costa, 1992) that need to be acknowledged. Its critics argue that five traits cannot encompass or account for all aspects of personality. Results from cross-cultural studies cast doubt on its validity, as only three of the five traits were consistently identified, and the traits identified are too broad resulting in less powerful behavioural predictions (Cheung, Vijeer, & van de Leong, 2011; De Raad & Peabody, 2005; McCrae, Terracciano *et al.*, 2005; Paunonon & Ashton, 2001). Others argue that there is a need to include another dimension (honesty-humility), which has frequently been identified and is not represented by dimensions of the existing model (Cervone & Pervin, 2008; Gow *et al.*, 2005).

Building on this, until more recently FFM had not been fully explored for its applicability to clinical or offending populations (Ireland, Brown & Ballarini, 2006; Blackburn, 2007; Widiger, 2005). Ireland *et al.* (2006) conducted one of the first studies of maladaptive personality traits in offenders. One hundred and forty one detained adult men completed self-report measures of personality, coping and psychological stress. In particular with regards to personality they found a three-factor model best represented this sample. Their model included personality traits/factors termed *Asocial*, *Antisocial* and *Anxious/Dramatic*. Results from this study suggested the FFM had limited application to offenders.

Ireland and Ireland (2011) explored the structure of personality traits in two independent samples of adult prisoners (n=253 and n=183). This study compared the original FFM with an alternative five-factor structure, and found that a revised model had a better model-fit. This alternative model included traits of *understanding and empathy*, *emotional stability*, *extraversion*, *intellect/openness*, and *organisation/calmness*. There was some crossover of traits, yet the FFM trait of conscientiousness was not identified and its inclusion in a personality model for offenders was questioned. In light of these results, the authors emphasised caution with the automatic adoption of general models of personality for special

subgroups such as offenders.

As noted previously, certain personality traits induce aggressive cognitions and affect. Existing aggression theories (Anderson & Bushman, 2002; Crick & Dodge, 1994; Huesmann, 1998) however, lack clarity on these precise interactions and whether other variables have influence (Bettencourt *et al.*, 2006). Additional theorizing and clarity were thus called for (Miller, Lynam, & Leukefeld, 2003). Underlying motivation for aggression may be a further variable of interest to consider due to its conceptual overlap with aggressive behaviours (see Chapter 2) and personality (Ireland, Brown & Ballarini, 2006; Ireland & Ireland, 2012; Steel & Kong, 2006). In support of this, Caprara, Perugini and Barbaranelli (1994) found a variety of aggression-related personality variables loaded on two separate factors. One represented reactive and the other the proactive motivational dimensions of aggression. It appears this study uncovered association between patterns of personality traits and aggression motivations that had not been examined previously. However, it was unclear whether motives for aggressive behaviour were similar or do indeed differ across personality traits. Such considerations may enhance understanding of the link between personality and aggression beyond current writings that focus on cognition and affect alone (Ireland, Brown & Ballarini, 2006).

Exploration of the association between more extreme personality traits and aggression also remains less well considered in the literature (Ireland, Brown & Ballarini, 2006; Logan & Johnstone, 2010). Such extreme personality traits are commonly referred to as part of personality disorder, which is defined as an enduring pattern of inner experience and behaviour that deviate markedly from the individual's cultural expectations. This pattern of disturbance should be traced back to adolescence or early adulthood, and should manifest itself in at least two of the following areas; cognition, affect or interpersonal functioning. This manifestation must be persistent, pervasive and problematic, yet distinct from any mental disorder, influence from a substance or another physiological condition (American Psychiatric Association, 2013). Individuals may present with one or more personality disorders, with their identification made through structured clinical assessment or often in applied research by extreme scores on personality measures (Logan & Johnstone, 2010). Ullrich and Coid (2009) argued by definition that individuals with personality disorder should display more extreme maladaptive patterns of traits and behavioural manifestations of these.

Ten personality disorders are identified and often grouped into clusters by their presenting symptomatology (DSM-V, APA, 2013⁵). Table 1 provides a description of the behavioural characteristics for each disorder, which although is not exhaustive in relation to the diagnostic criteria, includes the central tenets of each presentation.

Table 5.1. PDs included in DSM-V including its cluster and core characteristics (adapted from APA, 2013).

PD	Cluster	Core characteristic patterns
Paranoid	A	Distrust and suspiciousness such that others' motives are interpreted as malevolent
Schizoid	A	Detachment from social relationships and restricted range of emotional expression.
Schizotypal	A	Acute discomfort in close relationships, cognitive or perception distortions, and eccentricities of behaviour.
Antisocial/Dissocial	B	Disregard for, and violation of, the rights of others.
Borderline	B	Instability in interpersonal relationships, self-image, and affects, and marked impulsivity.
Histrionic	B	Excessive emotionality and attention seeking.
Narcissistic	B	Grandiosity, need for admiration, and lack of empathy
Avoidant	C	Social inhibition, feelings of inadequacy, and hypersensitivity to negative evaluation.
Dependent	C	Submissive and clinging behaviour related to an excessive need to be taken care of.
Obsessive-compulsive	C	Preoccupation with orderliness, perfectionism, and control.

Personality disorders are overrepresented in offenders and thus it is argued that they are clearly linked to their elevated levels of aggression in comparison with the general population (Fazel & Danesh, 2002; Logan & Johnstone, 2010). A number of studies have failed to identify correlations between traits identified in the FFM (McCrae & Costa, 1992) and individuals with personality disorder (Morey *et al.*, 2007). This casts further doubt on the applicability of generic models to the assistance of our understanding of personality

⁵ The DSM-V was published on the 18th May 2013. There were no final alterations made to the ten classified personality disorders from the DSM-IV upon which this research was devised and undertaken.

functioning in extreme populations such as offenders.

There is some evidence that PD is linked to increased aggression (Hodgins, Mednick, Brennan, Schulsinger, & Engberg, 1996; Yang & Coid, 2007). A literature review by Esbec and Echeburua (2010) indicated that individuals with odd or eccentric personality disorders (Cluster A) were generally less aggressive than those with dramatic and erratic disorders (Cluster B). Individuals with anxious and fearful type disorders (Cluster C) were also found to display less aggression. However, empirical examination of the influence of PD traits on aggression or its motivation in forensic samples is scarce (Logan & Johnstone, 2010). There are some studies, however, that merit further discussion as follows.

Coid (2002) for instance, was one of the first to investigate personality disorders, aggression motivation and disruptive custodial behaviours in detained men. He conducted interviews with 81 adult offenders, reviewed file documentation and administered screening instruments of personality disorder. Screening indicated a range of personality disorders present (dissocial [84% of the sample], psychopathy [73%], paranoid [67%], narcissistic [63%], and borderline [56%]). Regression analyses indicated that aggression towards other prisoners was related to antisocial and narcissistic traits, and motivated by views that aggression solved interpersonal problems, helped to maintain pride in their physical prowess, and/or to maintain self-esteem (Coid, 2002). Aggression towards staff was also elevated in prisoners with traits of narcissistic personality disorder, but less common in individuals with schizoid or borderline personality disorder. Inability to tolerate stress, pride in their fighting abilities and intolerance of rules were the common motives for aggressive behaviours. Coid (2002) concluded that clear interactions existed between personality traits, motivation and aggression in offenders.

There are several limitations to the Coid (2002) study. First, the sample was extracted from special prison units whom reportedly housed the most disruptive of prisoners or those awaiting psychiatric assessment. This sample may, therefore, reflect a special sub-group of the most disordered prisoners and the representativeness of findings to more generic prisoner populations is questionable. Secondly, underlying behavioural motivations were *inferred* by the researcher using pre-developed scoring materials rather than gained through participant reporting. This invites further concerns in relation to methodological biases. Finally, the use of a screening measure of personality disorder is another noteworthy limitation of this study.

Edwards *et al.* (2003) conducted a later study with 43 men convicted of spousal violence and 40 men convicted of non-violent crimes. Using self-report questionnaires they examined the influence of personality disorder and impulsivity on spousal aggression and violence. Significant correlations were found between aggression, impulsivity and personality disorder traits. Specifically, analyses between groups (violent versus non-violent offenders) indicated that impulsive aggression and traits of borderline and/or antisocial personality disorder were more prominent amongst violent offenders. Further regression analyses indicated that borderline and antisocial personality disorder traits were the strongest predictors of spousal aggression over other variables such as impulsivity. The finding that borderline personality disorder was predictive of aggression was contrary to a previous study by Coid (2002) whose results indicated a less significant role. Methodological differences between studies or differences in the targets of aggression (i.e. other prisoners and staff [Coid, 2002], intimate partners [Edwards *et al.*, 2003]) could explain these findings, although this remains unknown. Nonetheless, both studies indicate a key role for extreme maladaptive personality traits in aggression.

Dolan and Blackburn (2006) examined PD and prospective prison aggression in a sample of 100 adult males. They focused on antisocial personality disorder and psychopathy in particular. Psychopathic personality traits include a lack of remorse or shame, a lack of insight, failing to learn from experience, glibness, shallow affect, egocentricity, antisocial orientations as well as others (Cleckley, 1941; Hare, 1991). It is thus an extreme form of dissocial personality disorder. Individuals with psychopathy present a higher risk of aggression, violence and recidivism (Hemphill, Hare & Wong, 1998). Many clinical risk instruments also use psychopathy as a key risk factor (Douglas & Belfrage, 2014). Psychopathy is not, however, a focus of the current thesis. Following a 12 month follow-up they found that antisocial personality disorder and psychopathy distinguished persistent aggressors from desisters. Higher trait scores on these disorders predicted greater acts of physical and verbal aggression.

Daffern and Howells (2009) explored underlying motivation for offending and aggression in a sample of 34 personality disordered forensic patients. In two independent studies they examined claims that personality disordered patients were more inclined to display proactive than reactive aggression (Cornell *et al.*, 1996; Heilbrun *et al.*, 1998; Porter & Woodworth, 2007; Williamson, Hare, & Wong, 1987). Their first study involved a retrospective review of

file documentation relating to patients' index offences and incidents of aggression in a secure hospital setting. Motivation was assessed using a rating system, named the Assessment and Classification of Function (ACF: Daffern & Howells, 2008), which drew together information relating to the antecedents and consequences of aggression to infer its underlying motivations. They found 11 underlying motivations across incidents of offending and institutional aggression. The most frequently identified motives for offending were to express anger (92.3% of the sample reported this), seek sensation (82.35%), sexual gratification (80.65%), and to observe suffering (70.83%). In contrast, the most common motives for aggression among the personality disordered sample were to express anger (93.02% reported this), enhance status (59.13%), catharsis (44.35%) and to observe suffering (26.08%). The authors indicated this evidenced the multi-functional basis of offending and aggression motivation including their links to personality disorder traits.

Daffern and Howells' (2009) second study involved the assessment of aggressive incidents of the same patients ($n = 34$) over a two-month period. These were additional and separate incidents from those examined in study 1. This study involved interviewing the staff and patients involved in the incidents of aggressive behaviour. Interview data was coded by the authors according to one or more of the 11 motives identified by study 1. They found that a significant reported motivation for aggression was the expression of anger (96.96% of all incidents). They concluded that their findings contradicted contentions that those with personality disorder were more likely to engage in proactive aggression due to the prominence of anger release as a motive (often linked to reactive aggression), and that most incidents appeared to be driven by multiple motives. This is consistent with those who argued that the relationship between personality disorder and aggressive behaviour is varied in magnitude, motivations and direction (Johnson *et al.*, 2000).

Daffern and Howells (2009) identified some limitations of their study. These included their failure to examine motives for cross-situational consistency, which many identify as a key consideration (Mischel, 2013). Secondly, they identify that the ACF measure used had not been subjected to empirical scrutiny and its reliability and validity were therefore uncertain. They also accepted that their small sample size was a limitation. Notwithstanding this, there are further identifiable limitations. These include that information was predominantly gained from file documentation (in study 1), and concerns have been noted about the accuracy of data recordings in such settings (Smith *et al.*, 2014). Furthermore, motives were inferred from

measures by one of the authors without independent scrutiny or the corroboration of self-report (Studies 1 and 2).

Overall, with regard to the links between personality disorder, aggression and its motivations, a number of constraints and methodological issues have hindered understanding. These include the use of varying approaches to the classification of personality disorder traits and aggression with other disorders (Gilbert & Daffern, 2011), the complexities in the identification of disorders due to elevated rates of co-morbidity (Verheul & Widiger, 2004), and a tendency to focus on violent or offending behaviour as opposed to aggression *per se* (see chapter 2). Arguably, the absence of a reliable self-report measure of aggression motivation has resulted in researchers inferring motives from interview or documented information, raising questions about the influence of bias. Consequently, little is known as to why certain personality disorder traits influence aggression whilst others appear to inhibit such actions.

A further facet of personality is impulsiveness (Eysenck, 1947; Gray, 1972), which is also implicated for its influence on aggression via self-control (Bari & Robbins, 2013). This is discussed further in the next section.

5.3 Self-control and aggression

Self-control is defined as one's capacity and ability to restrict a particular behavioural response (DeWall, Finkel & Denson, 2011; Tangney, Baumeister, & Boone, 2004). Self-control most widely pertains to the management of manifesting thoughts, emotions and/or behaviours (Hare *et al.*, 2009; Hofmann *et al.*, 2012). Other terms such as self-management, inhibition and impulsiveness are used, yet self-control is the term used more broadly (Cohen & Lieberman, 2010; Frijda, 2010; Gottfredson & Hirschi, 1990).

Poor self-control is often noted as a feature or consequence of a range of difficulties including antisocial behaviours and aggression (APA, 2013; DeWall, Finkel & Denson, 2011; Nigg, 2001; Perry & Carroll, 2008). However, some have argued that reduced self-control can be functional in certain contexts (Strayhorn, 2002; Fuster, 2008). For instance, disinhibition has been linked to an increased willingness to explore new behavioural approaches when faced with social problems (Derefinko *et al.*, 2011; Dickman, 1990).

Deficient self-control is perhaps one of the most common individual factors linked to

offending and aggressive behaviour (Derefinko *et al.*, 2011; Low & Espelage, 2014; Lynam & Henry, 2001; McDougall, Venables, & Roger, 1991; Moffitt, 1990). Empirical investigations have consistently found that poor behavioural control or impulsiveness is a significant risk predictor for criminality and violence (Bechtold *et al.*, 2014; Gordon & Egan, 2011; Vazsonyi, Cleveland, & Wiebe, 2006). Indeed, many forensic clinical risk and personality assessments identify impulsivity and poor self-control as important (Douglas & Belfrage, 2014; Hare, 1991).

In an influential text Gottfredson and Hirschi (1990 built on previous work by Wilson & Herrnstein, 1985) proposed a theory titled *A General Theory of Crime*, which argued that the major determinant of delinquency and other analogous behaviours such as aggression was poor self-control. Gottfredson and Hirschi (1990) preferred the term self-control as they believed it was sufficiently broad to encapsulate impulsivity and other factors of interest in criminality and personality, such as risk-taking, self-centredness and low empathy for others. They suggested that most offenders, due to an impulsive orientation, focused on achieving immediate rewards and thus consideration of any longer term consequences is neglected. In contrast, they argued those with high self-control would be less likely to engage in delinquency or other analogous behaviours.

The view that self-control difficulties result in delinquency is evident from a variety of studies with young and adult offenders, as well as self-reported criminality amongst students (Couyoumdjian *et al.*, 2010; Gibbs *et al.*, 1998; Henry, Caspi, Moffitt & Silva, 1996; Junger & Tremblay, 1999). Perhaps the most methodologically robust of these investigations was the meta-analytic study of Pratt and Cullen (2000). They examined the validity of Gottfredson and Hirschi's (1990) theory from 21 empirical studies (17 separate data sets) with approximately 49,727 individual participants. Their results indicated that across all studies poor self-control had a moderate effect ($r = .27$) in predicting delinquency. However low self-control had a weaker predictive influence in longitudinal studies ($r=.19$), which was postulated to be due to the influence of social learning resulting from sanctions imposed. Pratt and Cullen (2000) concluded that low self-control qualified as one of the strongest individual correlates of increased crime. This is a view supported by another recent meta-analysis study conducted by Vazsonyi and Belliston (2007).

There are limitations to such meta-analytical investigations, however, such as the possibility

that included publications have a favourability bias due a tendency to publish studies with significant findings (also referred to as the ‘file draw problem’ [Rosenthal, 1979]). Secondly, because of the amalgamate nature of meta-analyses, individual studies with less robust methodologies could be bolstered by rigorous studies (also termed the ‘apples and oranges problem’ [Cohen, 1977]). There are further critics of Gottfredson and Hirschi’s theory (1990) including Akers (1991) who argued that their failings to define self-control and behaviours as separate entities results in a tautological problem concerning causality.

Gottfredson and Hirschi (1990) were nevertheless explicit in their claims that low self-control explained both delinquency and other analogous behaviours. In line with this, links between low self-control and persistent gambling, substance misuse difficulties, and other psychopathologies are noted in the literature (Denson, DeWall & Finkel, 2012; Smith & Waterman, 2006), including aggression (Barratt, Stanford, Kent & Alan, 1997; Berkowitz, 1993; DeWall, Finkel & Denson, 2011).

Feltous and Barratt (2003) argued that whilst all individuals are capable of impulsiveness/poor self-control and aggression, clinical populations differ in their relative severity and frequencies. A long-standing hypothesised relationship exists between poor self-control and reactive aggression (Babcock, 2014; Caprara, Barbaranelli, Pastorelli & Perugini, 1994; Fite, Stoppelbein, Greening, 2013; Raine *et al.*, 2006). There is also some evidence that aspects of poor self-control, such as cognitive impulsiveness, are prominent amongst proactive aggressors (O’Connor *et al.*, 2012).

In general, empirical comparisons of aggressors and non-aggression indicate a trend of elevated rates of poor self-control amongst aggressors (Babcock, 2014; Bettencourt, Talley, Benjamin, & Valentine, 2006; DeWall, Finkel & Denson, 2011). DeWall *et al.* (2011) in particular argued that a strong relationship exists between self-control and aggression. They described the activation of aggressive urges coupled with reduced self-control should increase aggression. Conversely, aggression could be inhibited by the strengthening of self-control abilities despite an activation of urges. This view was also supported by Caprara *et al.* (2002) whose research with a mixed sample of 350 boys and girls indicated that perceived self-control difficulties predicted aggression in the past and in a two-year follow-up evaluation. No sex differences were found, with parenting not a factor. They concluded that those with self-control difficulties would be unlikely to be able to inhibit their aggression. Yet, this study

examined *perceived* self-control rather than possible variables that influence such perceptions or actions.

Averill (1983) was one of the first scholars to acknowledge that most individuals experience regular inclinations towards aggression, and yet they do not act on these owing to some inhibitory force. Berkowitz (1990) also described how

“...we sometimes hold back and do not display the hostility or aggression we are inclined to show because of the operation of some kind of self-regulatory mechanism” (p. 501).

Following a review Battencourt *et al.* (2006) observed that theoretical development and testing of inhibitors for aggression, including any links between self-control, had largely been neglected. Since then an increased interest in the empirical evaluation of two fundamental self-control hypotheses, the *depletion* and *bolstering* hypotheses, has occurred (Denson *et al.*, 2012). The depletion hypothesis contends that individuals have varying capacities and resources for self-control and once such abilities are temporarily depleted due to effortful control, the risks of aggression increase (Baumeister *et al.*, 2007). Capacity for self-control is equally said to differ according to contextual demands (Baumeister, Muraven & Tice, 2000; Denson *et al.*, 2012). Thus our capacity and ability to regulate behavioural urges varies from times of depletion to times of replenishment.

To examine the veracity of the depletion hypothesis, Denson *et al.* (2010) conducted two experiential studies with undergraduate students to explore the influence of glucose and mental depletion on aggression. In their first study 80 participants were randomly assigned to either a glucose or non-glucose condition and then faced a pre-recorded provocation. A measurement of aggressive responding was experimentally set by a paradigm that included participants being able to fictitiously provide a noise blast to their provoker. Participants also completed self-report measures of mood and trait aggression. Denson *et al.* (2010) found that after provocation, mental depletion was a significant predictor of aggressive responding particularly amongst those with high trait aggression. Their second study was a methodological replication of the first, although on this occasion with 170 students. In support of the depletion hypothesis, they again found depleted self-control was a significant predictor of aggressive responding to provocation.

The bolstering hypothesis is based on the premise that enhancement of self-control should reduce aggressive behaviour (Denson *et al.*, 2012). Frequent practice of self-control skills leading to augmentation of improved abilities is indicated as the primary method of enhancing self-control and reducing aggression. In support of this, there is some evidence from therapeutic interventions that targeting self-control is effective in reducing further incidents of aggression in children, adolescents (Lockman, Barry, & Pardini, 2003; Piquero *et al.*, 2010) and adults (Hatcher *et al.*, 2008).

Hatcher *et al.* (2008) specifically explored the effectiveness of the Aggression Replacement Training (ART) programme in a sample of 53 adult male violent offenders serving community sanctions. They accessed the intervention through the England and Wales Probation Service. The programme provided self-control training as one element of its wider aims. In this study, programme attendees were matched with a comparison group of 53 non-attendee offenders on key variables such as age and risk of re-conviction. Consistent with predictions of the bolstering hypothesis, they found that over a 10-month follow-up the ART programme decreased rates of reconviction for aggressive offences by 13.3%. However, as this study did not specifically separate the self-control components of the intervention from others, such as moral reasoning or consequential thinking skills, caution is required prior to making specific connections between bolstered self-control and reduced aggression. The relatively short follow-up period and use of reconviction data only (Newburn, 2012) are further limitations.

A recently developed meta-theory to emphasise the role of self-control and inhibition in aggression is Finkel's (2007) *I³ Theory*. Pronounced 'I-cubed theory' this framework sought to impose greater theoretical coherence on the factors capable of promoting as well as preventing aggression (Denson, DeWall & Finkel, 2012; Finkel, 2007; Finkel & Slotter, 2009). *I³* theory identifies three processes as pivotal to determining whether aggressive urges culminate in aggression or instead are overridden in favour of non-aggression. These three factors are the *Instigators*, *Impellers* and *Inhibitors* with the initial letter of each represent the three I's in *I³* theory (Finkel, 2007). Arguably, the theory improves on other established frameworks, such as the General Aggression Model (Anderson & Bushman, 2002; DeWall & Anderson, 2011; see chapter 2), due to its inclusion of the concept of self-control (Denson, DeWall & Finkel, 2012). Others models fail to attend to the possibility that urges to aggression are not always acted upon and thus place little or no emphasis on self-control or aggression inhibition.

According to Finkel's theory (2007), instigators are the dynamic social factors that trigger urges to aggress. Such factors are said to activate pro-aggression cognitions, affective states, physiological arousal and/or behavioural scripts (see Chapter 2 for further discussion of such factors). Impellers are the dispositional or situational factors that psychologically prepare the individual to aggress, culminating in a state of readiness. Individuals are said to experience urges to aggress when both motivating forces and instigators are present and significant. Finkel (2007) posited that inhibitors are the intrinsic or extrinsic dispositional (e.g. personality) and/or situational factors, which ultimately determine the threshold that urges must surpass to manifest as aggression. In other words, if instigators and impellers are strong and inhibitors are weak aggression is probable. Conversely, should inhibitors be stronger, acts of non-aggression are likely (Finkel, 2007; Finkel & Slotter, 2009).

Finkel (2007) proposed dispositional and situational inhibitors fell into one of four categories: (i) evolutionary and cultural; (ii) personal; (iii) dyadic; and, (iv) situational. Individual examples cited within these categories included; social or institutional norms (Guerra, Huesmann & Spindler, 2002), dispositional self-control (Finkel *et al.*, 2009), increased empathy or perspective taking (Richardson, Green & Lago, 1998), relative size of target (Archer & Benson, 2008), increased cognitive processing time (Finkel *et al.*, 2009), and the absence of alcohol (Denson *et al.*, 2008). The roles of emotion and cognition in aggression are discussed in Chapters two and four respectively.

Despite its more recent development, there is some empirical support for the principles outlined by I³ theory (Denson, DeWall & Finkel, 2012). For instance, Finkel *et al.* (2012) conducted a series of four studies to test its theoretical predictions and assumptions. Study one examined the hypothesis that aggression would occur when inhibitions and self-control are weakened. Using a national survey and interviews with married couples they separated individuals (n=175 including 114 men and 61 women) with a clinical diagnosis of Intermittent Explosive Disorder (IED) from others, and then compared their respective rates of partner aggression. According to diagnostic systems (such the DSM), individuals with IED are likely to exhibit intermittent yet serious episodes of aggression towards person or property that is disproportionate to its precipitating psychosocial stressors. Finkel *et al.* (2012) said that the presumption was the IED group inherently had depleted inhibitions. Consistent with a core assumption of I³ theory, they found an IED diagnosis predicted partner aggression whilst controlling for effects from either general psychological distress or negative emotion.

In study two, Finkel *et al.* (2012) tested the notion that dispositional factors, such as cognitive depletion, would impel partner aggression. They experimentally manipulated depletion using a standardised attention control task that required participants to exert self-control during a video attention task (DeWall *et al.*, 2007). Forty undergraduate students in dating relationships were randomly assigned to either a depleted or non-depleted condition. All participants completed the Proximal Antecedents to Violent Episodes (PAVE) Scale (Babcock *et al.*, 2004) to examine their aggressive responses to hypothetical scenarios. Finkel *et al.* found depletion was a strong dispositional impeller predicting physical aggressiveness and intimate partner violence. This supported the premise concerning impellers to aggression as set out by I³ theory.

In study three, I³ theory's predicted interactions between instigators, impellers and inhibitors in a separate sample of 51 undergraduate students was examined. Participants completed internet-based daily diaries, and baseline measures of dispositional aggression and executive control at the project's outset (impellor). Following perceived provocation (instigator) partners were asked to complete the voodoo doll task, in which participants would determine the number of pins they would insert into a doll representation of their partner reflecting behavioural aggression (DeWall *et al.*, 2011). Binominal regressions indicated that daily pin insertion decisions (aggression) were predicted by the combined interactions of the instigator, impellor and low inhibitions. Most pins were inserted at times when perceived partner provocation was high, dispositional aggressiveness was elevated and executive control was depleted. This finding is consistent with the hypothesised predictions and principles of I³ theory.

Finkel *et al.*'s (2012) final study continued the exploration of expected interactions between instigators, impellers and inhibitors. However, on this occasion different variables and participants were used from those in study three. Partner neuroticism was the instigator, the impellers were dispositional anger and aggressiveness, and the disinhibitor was psychosocial distress. Partner aggression was measured in an initial laboratory session using the PAVE (Babcock *et al.*, 2004) protocols as used in study two. This study combined the approaches utilised in its predecessors, which included baseline self-report measurements, laboratory tasks and online daily diaries. Data was collected immediately and again 18 months later in order to examine interactions of the three process variables (instigators, impellers and inhibitors). Consistent with I³ theory, and comparable with their results from previous studies, they found

neuroticism and dispositional aggressiveness/anger and stress significantly predicted partner aggression across timescales. This effect remained even after controlling for extraneous variables such as history of aggression.

These studies provided initial and provisional support to I³ theory's three core concepts, including the role of inhibition adding to our understanding of aggression. However, issues of ecological validity as a result of using fictitious laboratory induced aggressive provocations are raised. Secondly, it is unclear as to how potentially biased responding or underreporting was managed in the daily diary data collated, which is relevant given the documented prominence of 'intimate terrorism' in abusive partner relationships (Graham-Kevan & Archer, 2003; Straus & Gozjolko, 2014). Thirdly, generalisation of these findings to non-student populations would be questionable, and thus applications of this theory to extreme populations such as offenders must remain tentative.

Finally, a further multivariate framework to emphasise a role for self-control and inhibition, and indeed many other aspects of aggression theory, is Megargee's *Algebra of Aggression Model* (1976, 2009, 2011). Megargee proposed that interactions between multiple factors compete for the expression of aggressive and non-aggressive inclinations, a process he termed 'response competition'. In line with elements of motivation and Rational Choice Theory (see Chapter 2), he pointed out that behaviours offering the most benefit and least cost are selected and expressed (Megargee, 1976, 2009, 2011).

According to Megargee (1976, 2009, 2011), instigators reflect the intrinsic or extrinsic factors that propel aggression. He based intrinsic factors on well-established triggering physiological and psychological variables for aggression, such as anger or frustration, pain, substance use, and genetic predispositions. External factors were related to social learning theory and models of aggression with an emphasis on actions towards obtaining desired goals such as tangibles, power or social status. A representation of this theoretical model is presented in Figure 5.1.

Figure 5.1. The Algebra of Aggression Model (Megargee, 2011).

$\text{Potential for aggression} = (A[t] + H + Sa) - (I + Si)$	
<u>Key</u>	
<i>A = Instigation of aggression</i>	<i>I = Inhibitors against aggression</i>
<i>t = Target or victim</i>	<i>Sa = Situational factors that encourage aggression</i>
<i>H = Habit strength</i>	<i>Si = Situational factors that inhibit aggression</i>

Megargee (2011) referred to the target or victim as the likely recipient of the individual's aggression, which could include a specific person or a collective group. In line with Huesmann's (1998) contentions about the role of social-cognition in aggression, the factor habit strength in this model included notions such as behavioural scripts, normative beliefs, and learning through reinforcement that results in persistently aggressive responses. With regard to situational factors that encourage aggression, Megargee (2011) alluded to several cultural, contextual and environmental factors such as provocation, crowding, ambient temperature, access to potential victims and weapons, to name but a few.

In relation to both individual and environmental inhibitors, Megargee (1976, 2009, 2011) conceptualised these as the variables that defer aggression, improve self-control and increase the likelihood of a non-aggressive response. He referred to broad-ranging individual factors such as response fear or anxiety, presence of empathy for the target, physical size of the target or practical issues such as the non-availability of weapons. Yet, other potential inhibitors such as certain individual cognitions or personality traits (as described earlier) were excluded. Reduced access to target/s, elevated levels of surveillance, improved engagement with prosocial influences, and increased intimidation by the target were identified as situational inhibitors (Megargee, 2011). Although there are some published studies on the application of the Algebra of Aggression Model to case studies of aggression (Megargee, 2009, 2011), at present this model remains confined to single case testing and philosophical discussions. To date no published empirical studies have tested its underlying assumptions about aggression more broadly.

There is potential for parallels to be drawn between the Algebra of Aggression Model (Megargee, 2011) and I³ theory (Finkel & Slotter, 2009). Both frameworks incorporate multiple factors and assert how they interact to result in either the encouragement or inhibition

of aggressive action/s. I³ theory regards this as a ‘battle’ of intrinsic and extrinsic forces (instigators and impellers against inhibitors), whereas the algebra model views this as a competition between responses based on their relative rewards and costs. The acknowledgement of self-control in these models reflects their greater potential in achieving a broader understanding of aggression over competing frameworks. However, neither model has been comprehensively tested or applied to more specialised populations where elevated rates of aggression are likely, such as offenders. For instance, Finkel’s (2007) four categories of inhibitors (cultural, personal, dyadic and situational) remain unconfirmed or directly tested through empirical study in either general or forensic populations. Further investigation about the value of these frameworks and specifically the role of self-control in aggression is needed.

5.4 Concluding comments

Personality difficulties are influenced by developmental factors, and many such experiences are shared by those who display habitual aggression. Thus, personality and aggression are inextricably linked with a number of variables, such as cognition and affect, recognised as important with regard to this relationship. Existing theoretical models, such as the General Aggression Model (Anderson & Bushman, 2002), I³ theory (Finkel & Slotter, 2009) and Algebra of Aggression Model (Megargee, 2011), whilst acknowledging the influence and role of personality in aggression, lack detail, given that the concept of personality is broad. The sole emphasis that particular traits influence aggressive cognitions and emotions could be equally restrictive as it fails to consider other variables of interest, such as underlying motivation (Capara *et al.*, 1994; Miller *et al.*, 2003; Reiss, 2004).

Maladaptive personality traits manifest themselves as enduring patterns of inner disturbance and overt behaviours across time and contexts. Individuals with such traits are thus more likely to experience greater functioning difficulties by virtue of that. Despite elevated rates of maladaptive personality traits and aggression in forensic populations (Coid, 2009; Walters, 2007), consideration of their association requires more research. Research examining aggression motivation and personality traits more generally is scarce. This is clearly an area worthy of continued and more robust research attention (Coid *et al.*, 1999; Esbec & Echeburua, 2010; Warren *et al.*, 2002).

Linked to personality is an individual’s capacity for self-control. Difficulties with inhibiting urges towards action are emphasised in both the delinquency and aggression literatures

(Battencourt *et al.*, 2006; Gottfredson & Hirschi, 1990). Aggression researchers, however, have been slower to react to the notion that not all urges result in aggressive actions. Two recent theories, namely I³ (Finkel, 2008) and the Algebra of Aggression Model (Megargee, 2011), have emphasised the need to examine the multifaceted nature of aggression through considering dispositional and individual factors that impel as well as inhibit aggression. Independent evaluations of these frameworks and exploration of their applicability to more extreme populations such as offenders remain absent in the literature. This is problematic, given their potential to enhance further our understanding of aggression in offenders, inform assessments of risk and needs and also improve interventions for the management of aggression.

Chapter 6

ADDRESSING THE RESEARCH PROBLEM: UNDERSTANDING THE FACTORS UNDERPINNING AGGRESSION MOTIVATION AND INHIBITION IN PRISONERS

6.1 Structure of the chapter

This chapter provides a summary of the neglected areas of research in the literature concerning the association between developmental, cognitive, affect and personality factors with aggression motivation and inhibition in adult male prisoners. Detail as to how this thesis aims to address aspects of this is then outlined. A discussion of the objectives, predictions and methodology of this research draws the chapter to a close.

6.2 Aims

The overarching aim of this thesis is to understand further the factors underpinning aggression motivation and inhibition in prisoners. Research has indicated developmental, cognitive, affect and personality factors as recurring themes relevant to aggression, although their exploration among prisoners is more limited. Consequently, understanding is limited as to how aggression motivation and inhibition present in an offending sample, with the simplistic reactive versus proactive distinction perhaps being a focus of attention. A further aim is to explore how the underpinning characteristics of aggression motivation and inhibition could be combined into an integrated model for understanding aggression in forensic populations. To achieve these core aims and address identified gaps in the literature there are some additional and related objectives. These include identification of the components of aggression motivation and inhibition, and exploration of their underlying factors such as prisoners' developmental experiences, cognition, personality and emotional functioning.

First, with regard to developmental factors, as detailed in Chapter 3, many developmental concepts such as attachment and life-course experiences are salient for our later psychological and behavioural functioning. However, the study of such concepts remains confined to child or non-forensic samples. Related to this, some developmental pathways for aggression exist (i.e. parallel and sequential models), although these have not been examined for their suitability with prisoners. These pathways are also limited in their ability to explain the multifunctional

nature of aggression when considered in their purest forms. This thesis aims to address this absence of research and gaps in identified knowledge.

Developmental influences and life experiences are indicated as important and related to our later cognitive and personality functioning (see Chapters 4 & 5). Associations between aggression and personality are captured well in the literature. There is, however, limited detail in many integrated models (i.e. GAM or Algebra of Aggression) about the precise personality factors responsible for aggression. The influence of more maladaptive personality traits, such as those associated with a personality disorder, has received even less consideration with regard to their association with aggression. In the literature this absence of empirical investigation also exists in respect of personality and aggression motivation. Therefore, another aim of this thesis is to explore associations between maladaptive personality traits and aggression motivation and inhibition.

With regard to cognition, a further aim is to address identified gaps in the socio-cognitive literature on aggression in forensic populations. This includes exploration of normative beliefs and cognitive schemata (which are also considered enduring developmental factors), and how they are likely to influence aggression motivation. Cognition is equally indicated for its relation and importance in both the generation and regulation of our emotional experiences. Accounting for the lack of research in this area, this thesis will begin to address how emotion regulation and aggression motivation are related in forensic populations. There is a focus on the emotion regulation strategies used by prisoners and their link with aggression motivation, which has yet to be empirically examined to date (see Chapter 4). Studies with non-prisoners indicate this as an area deserving of further research.

An integrated model based on the findings of the above aims will be suggested at the conclusion of this thesis. This will integrate the results from the three detailed studies of this project, and make links as appropriate to existing integrated models of aggression. It aims to present the first generation of an integrated model of aggression in an offender sample that has been developed following analysis of how developmental, cognitive, emotional and personality factors can all relate in such a sample. It is hoped that this will contribute to the literature by facilitating increased attention and focused direction to the study of aggression in forensic populations. By identifying and describing the evidence base for the creation of this integrated model, future research can focus on testing its principle assumptions. The specific

aims of this thesis, together with their associated research predictions, are presented next.

Aim 1: To explore the components of aggression motivation and inhibition with prisoners.

Predictions:

1a: The components of aggression motivation will separate into two factors, reflecting reactive and proactive aggression (e.g. Dodge & Coie, 1987; Ireland, 2009; Raine *et al.*, 2006).

1b: Prisoners with different types of convictions (violent/non-violent) will differ in their aggression motivations (Gudjonsson & Sigurdsson, 2004; Ireland & Ireland, 2008).

1c: The offending motivations of Gudjonsson & Sigurdsson (2004) namely, compliance, provocation, financial, excitement and consequences will be confirmed.

1d: Significant associations will exist between offending and aggression motivations (Ajzen, 1991; Gudjonsson & Sigurdsson, 2004; Reiss, 2006).

1e: The aggression inhibition components of Finkel (2007), namely evolutionary and cultural, personal, dyadic and situational will be replicated.

Aim 2: To examine developmental differences between prisoners and in aggression motivation.

Predictions:

2a: Violent prisoners will differ from non-violent prisoners in terms of their developmental characteristics (Bowlby, 1984; Farrington, 2007; Moffitt & Caspi, 2001).

2b: Reactive aggressors will report more disciplinarian parenting practices than proactive aggressors (Dodge *et al.*, 1997; Vitaro & Brendgen, 2005).

2c: Proactive aggressors will report more permissive parental practices than reactive aggressors (Poulin & Boivin, 2000; Vitaro & Brendgen, 2005).

2d: A fearful/avoidant or pre-occupied child and adult attachment pattern will be positively correlated with reactive aggression (Bowlby, 1984; Farrington, 2007).

2e: A dismissive attachment style will be positively correlated with proactive aggression (Farrington, 2007; George & West, 1999).

Aim 3: To explore cognition and its role in aggression motivation and offending, specifically the role of schemata and normative beliefs.

Predictions:

3a: Violent prisoners will differ from non-violent prisoners in terms of their cognitive characteristics (Huesman & Guerra, 1997; Milner & Webster, 2006; Young *et al.*, 2003)

3b: Proactive aggressors will have more normative beliefs approving of their proactive use of aggression than other types of aggressors (Huesmann & Guerra, 1997).

3c: Each type of aggressor (proactive, reactive and mixed motive) will have distinct cognitive schemas due to inherent differences in their developmental history and socio-cognitive functioning (Beck, 1999; Young *et al.*, 2003).

Aim 4: To identify which emotion regulation strategies used by prisoners are associated their use of aggression.

Predictions:

4a: Emotion regulation strategies will differ between violent and non-violent prisoners (Gross, 2014; Robertson *et al.*, 2012; Ross, 2008).

4b: Use of cognitive reappraisal will be greater amongst proactive aggressors (Gross, 1998; 2014; Hubbard *et al.*, 2002).

4c: Use of expressive suppression will be greater amongst reactive aggressors (Gross, 1998; 2014; Vitaro *et al.*, 2002).

4d: Different emotion regulatory strategies will be associated with varying motivations and inhibitors for aggression (Gross, 2014).

Aim 5: To examine the role of maladaptive personality traits in aggression motivation and inhibition within a forensic population.

Predictions:

5a: Maladaptive personality traits will differ between violent and non-violent prisoners (Gilbert & Daffern, 2011; Hosie *et al.* 2014; Logan & Johnstone, 2010).

5b: Borderline and histrionic personality traits will be positively related to reactive aggression (Esbec & Echeburua, 2010).

5c: Narcissistic and antisocial personality traits will be positively associated with proactive and mixed motive aggressors (Baumeister, Bushman, & Campbell, 2000; Esbec & Echeburua, 2010).

5d: Different maladaptive personality traits will be associated with differing aggression motivations and inhibitors (Daffern & Howells, 2009; Fergusson *et al.*, 2008; Megargee, 2011).

6.3 Methodology

Field (2009) identified the two dominant research designs in applied psychology as correlational and experimental research. Experimental research concerns the manipulation of a certain variable to examine their effect on another variable of interest. In contrast correlational research is focused on the natural observation of variables without interference. Researchers decision making in terms of study design was described as a balanced judgement between: the inherent strengths and limitation associated with each approach (i.e. correlational and experimental); the nature of the research question/s being examined; and other contextual conditions, including availability of resources, under which the research is being conducted (Coolican, 2014; Field, 2009). A detailed discussion of merits and limitations of each research design in varying contexts is beyond the scope of this Chapter. Instead, description and justification of the correlational design of this thesis is considered next.

A correlational design was adopted in all three studies of this research as there was need to examine aggression motivation and inhibition and it associated variables without interference. Experimental manipulation of variables such as cognition, affect regulation, personality, developmental factors and aggression in a secure prison setting may not easily be achieved. Additional ethical concerns including the safety and well-being of participants, other prisoners, prison staff and the researcher was another important consideration within this decision making. Furthermore, even if these issues could be overcome through experimental manipulation, concern in terms of the ecological validity of any research findings or consequent theoretical models of aggression developed is another noteworthy consideration. In this research a correlational design provided a more natural assessment of the questions being posed in relation to aggression motivation and inhibition. Correlational research is often utilised and accepted as appropriate in initial theory development, testing and evaluation. However, in correlational research causal inferences cannot be made as variables are not isolated or manipulated (Coolican, 2014; Field, 2009). There is further discussion and consideration of the limitations of each study and this thesis overall in subsequent Chapters.

In terms of data collection, all three studies utilised self-report measures to examine constructs of interest. This included measures relating to aggression motivation and inhibition, emotion and its regulation, personality, developmental experiences and cognition. Other approaches of data collection certainly exist, such as an interview or behavioural observation, with each of these having potential advantages and disadvantages (Field, 2009). For instance, the benefits

of an interview over self-report measure could include its flexibility, and the possibility of interviewer probing increasing the richness of gathered data. Yet, the influence of biased responding and researcher effects remain a central limitation of an interview-based approach. Interpretive bias and research misattribution are featured limitations of behavioural observation approaches, as used in other studies of aggression motivation reviewed in Chapter 2.

Several constructs examined in applied research are perceptual in nature; such as cognition, affective responses and their regulation, developmental experiences, and motivations or inhibitions, and therefore they are perhaps most appropriately measured by self-report (Constantine & Ponterotto, 2006; Coolican, 2014; Howard, 1994; Spector, 1994). Limitations also exist with self-report assessment with their critics highlighting dangers associated with their psychometric properties (i.e. reliability), response distortions, method variance and monomethod bias. Without attention to these limitations, and their compensation by study design and planning, conclusions from any such research could be questioned (Coolican, 2014). The current research utilised self-report measures and additional considerations were introduced to compensate against the limitations of this data collection method. For example, participants were ensured anonymity to assist with true reporting, and compensatory measures of desirable responding were adopted to limit distortions. The psychometric properties (i.e. reliability and validity) of self-report measures used are reported in the results section of each study to ensure transparency and consideration in related discussion. Additional suggestions in terms of future research designs to enhance interpretations of causality and manage the influence of extraneous variables being noted in Chapter 10. These approaches are conversant to good research practice (Constantine & Ponterotto, 2006; Coolican, 2014; Spector, 1994).

Selection of the self-report measures used in this research was underpinned by the criteria described by Constantine and Ponterotto (2006). This included critical evaluation in terms of their cost, permission, administration/interpretation qualifications, length and completion time, and psychometric properties including reliability and validity. For instance, in Study 1 the Multidimensional Anger Inventory (Sigel, 1984) was chosen based on its availability through publication in a recognised peer review journal, the researcher satisfying any user criteria, its moderate length and short completion time, and its reliability and validity in previous research (see Chapter 7). Due to the novel nature of the current research, however, published measures were not available for all concepts being examined. An unpublished measure was used (i.e.

AMQ [Chapters 7, 8, 9]), due to the absence of a published equivalent. Considerations of the possible impacts of this are discussed further in Chapter 10.

There were no published measures available to comprehensively examine aggression inhibition, normative aggression beliefs, or developmental experiences related to aggression in adult male prisoners. The creation of suitable measures was therefore required, and their development followed the guidance proposed by Haynes *et al.* (1995) and is consistent with the practice of others (i.e. Carlson *et al.*, 2012). This included: (i) defining the domains and facets of the subject under investigation; (ii) use of evidence from the literature or other expert sources for the generation of items; (iii) formalising scaling procedures; (iv) examine the proportional representation of items; (v) subjecting all elements of the assessment instrument to assessment of validation and reliability; (vi) reporting all results when publishing a new assessment; and, (vii) continuing psychometric refinement through research. The creation of measures (i.e. those examining aggression inhibition, normative aggression beliefs and developmental experiences) for this research adhered to points 1, 2, 3, 4, and aspects of points 5 and 6. However, as measure development and validation was not the primary goal of this research other aspects of Haynes *et al.*'s (1995) guidance were not perused.

A non-probability opportunity sampling technique was used to access participants. This was adopted as during the planning and approval stages for each study restrictions were declared by the research co-ordinators at the prisons, which included access to only 2 prison wings being granted. Out of the 6 possible wings in both establishments sampled, 2 were selected at random and the procedures as set out in Chapters 7, 8 and 9 were completed. There were no unique features to the prison wings sampled, such as a wing specifically for those detained in isolated conditions due to disruptive behaviour. Consequently a cross section of the generalised population of each prison was represented. Data was also gathered from two different prison establishments during this research to ensure a more generalised sample of detained adult offenders were examined. Details relating to the ethical approval processes for each study are noted in the relevant Chapters of each study.

Sample size is a critical element of research design that researchers must attend to prior to conducting any study. As achievement of a sufficient sample size can ensure interpretations of any statistically and/or clinically significant findings are robust (Baguley, 2004; Field, 2009; Tabachnik & Fidell, 2007; VanVoorhis & Morgan, 2007). Based on the principles of error

variance, power, effect size, and the proposed statistical analyses for the current research (i.e. ANOVA, factor analysis and regression analyses) all studies targeted a sample above 200 participants. This is consistent with reasonable sample size estimations noted in the literature; such as samples above 50 for regressions; at least 30 per group for 80% power in analysis of group differences; and above 200 for factor analysis (Tabachnik & Fidell, 2007; VanVoorhis & Morgan, 2007). Post-hoc power analyses were also computed and reported in the relevant Chapters.

6.4 How the thesis will address the research aims

In the following chapters, three studies describe how the aims and objectives as set out in section 6.2. were addressed. The final chapter will outline a discussion of the evidence generated by this thesis and how this underpins a new integrated model for aggression motivation and inhibition in prisoners.

The first study (Chapter 7) explores the components of aggression and offence motivation and their association with anger. This study aims to examine whether underlying motivation is capable of differentiating between types of prisoners (i.e. violent versus non-violent) where differences are expected, and whether motivations share common association to behaviours (such as antisocial and aggression) as predicted by motivational theory.

The second study (Chapter 8) develops this by exploring the componential nature of aggression motivation and how this relates to developmental characteristics associated with offending and aggression. An important addition to this is the examination of the developmental and socio-cognitive factors relating to aggression in adult forensic population. This is a large and separate sample of prisoners to those in the first study.

The third study (Chapter 9) further explores aggression motivation as well as inhibition through confirmatory and exploratory investigations. The role of maladaptive personality traits and emotion regulation strategies is also examined in this study. This is to address their limited attention in previous research with forensic populations in the literature.

Chapter 7

STUDY 1: AGGRESSION AND OFFENCE MOTIVATION IN PRISONERS

7.1 Structure of the chapter

This chapter presents the findings from study one, which explored the components of offence and aggression motivation with prisoners, and their relationship with anger and social desirability. This study was published in a peer review journal (*Aggr. Behav.* 37:278–288, 2011.), and a copy of this article is presented as a chapter in this thesis. Its structure will thus follow the format of a published article by commencing with an abstract and introduction, followed by methodology and results, and concluding with a discussion of the main findings, limitations and directions for future research.

7.2 Abstract

This study examined aggression and offending motivation. Participants were 206 adult male prisoners. All completed the Aggression Motivation Questionnaire [Ireland, 2008], the Offending Motivation Questionnaire [Gudjonsson & Sigurdsson, 2004], the Multidimensional Anger Inventory [Siegel, 1986] and the Balanced Inventory of Desirable Responding [Paulhus, 1991]. It was predicted that aggression motivation would separate into two factors, one reflecting proactive aggression and the other reactive aggression. It was predicted that aggression motives would vary by offence type. It was also predicted that the offending motives identified in previous research (i.e. Excitement, Compliance, Provocation and Financial) would be reflected in this study. Levels of anger and social desirability were also examined for their relationship with aggression and offending motives. Results indicated that aggression motivation separated into four core motives; protection, social recognition, perceived positive outcome, and pleasure. Violent and nonviolent offenders were found to differ in their underlying motives for recent acts of aggression. Anger was related to all core aggression motives, whereas social desirability was related only to some. Offending motives were similar to previous research although some differences were found. Results are discussed with reference to their theoretical and clinical implications.

7.3 Introduction

Over recent years, aggression has been the subject of extensive debate and theoretical exploration with various conceptual difficulties in existence (Baron & Richardson, 1994). Researchers have, nonetheless, emphasised two different types of aggression; *Proactive* and *Reactive*, which are said to differ with regards to their underlying functions (Dodge & Coie, 1987). Proactive aggression is described as instrumental, planned and organised (Berkowitz, 1989; Ireland, 2009). In contrast, reactive is defined as an uncontrolled form of aggression which is largely impulsive and driven by emotion. It is thought likely to occur in response to a blocked goal (Ireland, 2009). In recent years the ‘mixed-motive’ aggressor has also been acknowledged based on the notion that individuals can present with both proactive and reactive motivations (Gendreau & Archer, 2005; Raine *et al.*, 2006).

The proactive versus reactive distinction has value in operationalizing the concept of aggression by providing the potential for a greater understanding of the etiological pathways to aggression (Raine *et al.*, 2006). Explanations for aggression and its motivation have moved from individual understandings to multiple factor models (Anderson & Huesmann, 2003). The applicability of these variables and models to extreme populations, such as forensic samples, are less well researched and understood. This is surprising since raised levels of aggression are evidenced in such populations (e.g. Watt & Howells, 1999), and points to the importance of studying such samples.

Understanding motivation and aggression

First, however, there is a need to define what is meant by a motive and why it is relevant to the study of human aggression. Motives are the underlying reasons held by individuals for engaging in and performing a given behaviour (Ajzen & Fishbein, 1980; Ajzen, 1991; Reiss, 2004). Motives are said to organise the individual’s perception, attention, cognitions, emotions and behaviours, into coherent action (Reiss, 2004). Reiss (2004) also argues that any collection of motives, even if diverse, have common elements. With regards to aggression, the notion of intent is considered paramount in its definition (Baron & Richardson, 1994; Berkowitz, 1993; Tedeschi & Felson, 1994). Arguably therefore an individual’s intrinsic motive underlying their behaviour is significant in understanding the decision made to aggress. Indeed, Ireland (2008) argues that motivation is an issue often neglected within both research and clinical practice, arguing that “...aggression should be described less by its *nature* and more by its *motivation*” (p.69). At the forensic clinical level, exclusive attention to the mere nature of undesirable behaviour has negative implications. These include neglecting salient areas of recidivism risk

and failing to meet individual treatment needs (Andrews & Bonta, 1998). Research has nonetheless paid little attention to the concept of aggression motivation despite its theoretical and clinical significance.

Motivation Theory has been applied across various psychological disciplines (e.g. Houkes *et al.*, 2001; Ryan & Deci, 2000). Its application to forensic contexts, particularly to the study of aggression, is limited. Gudjonsson and Sigurdsson (2004) examined the importance of offence motivation more broadly than a sole focus on aggression, identifying five primary motivators for self-reported delinquency. These were compliance, provocation, financial, excitement and consequences. These motivators varied significantly across offence type, supporting the notion that motivation is pivotal in delinquent behaviour (Ajzen, 1991; Cornish & Clark, 1986). This study was limited by its sample, which was comprised of students, and by the focus on delinquency as opposed to aggression *per se*.

Predicting behaviours from underlying motives

Theories deserving of particular attention with regards to advancing our understanding of motivation and the decision to engage in aggression are *Social Interactionist Theory* (SIT: Tedeschi & Felson, 1994) and the *Theory of Planned Behaviour* (TPB: Ajzen, 1991). Both view aggression as instrumental and committed through rational consideration and choice selection. *Social Interactionist Theory* (SIT) argues that aggression results from a decision process made by the perpetrator to achieve relevant social goals, which include the control of others, the restoration of justice for perceived wrongs, and the protection of social or self-identity (Tedeschi & Felson, 1994). The decision to aggress, referred to as coercive power, is mediated by an expectancy that the goal will be reached, by the value attached to the respective goal, and by the estimated costs of the behaviour being minimised. SIT provides a useful explanation, therefore, for aggression motivated by social goals (Baumeister, Boden & Smart, 1996). It further highlights how critical it is to understand the decision making process and how this links to motivation.

SIT is perhaps then complemented further, however, by the *Theory of Planned Behaviour* (Ajzen, 1991; and its precursor the *Theory of Reasoned Action*, Ajzen & Fishbein, 1980), which incorporates attitudes, beliefs and intentions as part of motivation. *Theory of Planned Behaviour* (TPB) describes how the intention to engage in a behaviour is the amalgamation of an individual's personal attitudes towards the behaviour, the strength of support from

significant others (i.e. subjective norm), and the level of perceived behavioural control/self-efficacy that may inhibit or facilitate the behaviour (Ajzen, 1991). In a recent meta-analysis Armitage and Conner (2001) reported that the TPB explained 39% of the total variance in behavioural motivation and 27% of the variance in actual behaviour. The relationships between affective states (part of personal attitudes according to TPB) and the remaining elements of TPB have been further demonstrated by Armitage and Connor (2001) as valuable. They found that when negative mood states were experienced, participant's attitudes were more likely to be related to intrinsic (personal) motives than to social norms. The opposite was found for positive affective states. However, TPB's application to explaining aggression and delinquency more generally, is yet to be comprehensively examined.

Individual and situational motives for aggression

Building further on the TPB, at an individual level pro-aggression attitudes, values, and beliefs have predicted levels of general aggression (Huesmann & Guerra, 1997), aggression against target groups (Malamuth *et al.*, 1995), aggression as a means of achieving social status (Klein & Maxson, 1989) and aggression to manage social problems (Nisbett & Cohen, 1996). The origins of this have been related to the concept of hedonism. This contends that pleasure is the only intrinsic good and that humans strive to maximise pleasure and minimise displeasure (Reiss, 2004). There is also evidence to support different social models influencing the likelihood of aggression, such as aggression modelled from family behaviour (Farrington, 1991), peer groups (Cairns & Cairns, 1991) and the media (Bushman & Huesmann, 2006). This fits more with situational models for understanding aggression motivation and can incorporate cultural-level factors (Silberman, 1995; Ireland, 2002).

Cultural factors seem particularly important for forensic samples. Anderson's (1994) *Code of the Streets Theory* and the *Prisoner Subculture Theory* (Irwin & Cressey, 1962) both emphasise informal cultural rules which govern interpersonal behaviour, viewing this as underpinned by normative values (e.g. one should not betray another, one should be trustworthy and reliable). Other normative values including 'not backing down' and 'using violence to protect oneself' have also been reported in forensic populations (McGurk & McDougall, 1991). Thus underlying values become valuable in trying to understand the possible motives that underlie the readiness to aggress in a forensic population, such as prison. The function of such aggression is hypothesised to be an attempt by prisoners to preserve social image, or to protect their person or possessions (Irwin & Cressey, 1962; Toch, 1985).

Research into this area, however, is somewhat dated with a need to incorporate it more broadly into multi-factor theoretical explanations such as SIT and TBP.

The current study

The current research examines aggression motivation, broadening this to include offence motivation, within a sample of adult male prisoners. It aims to establish the components of motivation, exploring if the dichotomy of reactive and proactive motivation exists in extreme samples. The application of theoretical models, such as TPB in particular, will be further examined by considering the interaction between motives and affective states (i.e. anger). The following predictions were made: (1) Aggression motives would separate into two factors, reactive and proactive (Dodge & Coie, 1987; Ireland, 2008); (2) Prisoners with different types of convictions (i.e. violent/non-violent) will differ in their underlying motives for aggression (Ireland, 2008) and offending (Gudjonsson & Sigurdsson, 2004; Ajzen, 1991); and finally (3) The offending motivation components of Gudjonsson & Sigurdsson (2004), namely compliance, provocation, financial, excitement and consequences will be replicated in the current sample.

7.4 Method

Participants

The sample of adult male prisoners, were taken from a category C training prison. Category C (medium) refers to the security conditions under which the prisoner is held. A total of 433 questionnaires were distributed. Two hundred and six were returned suitable for analysis (response rate of 47.6 percent). Of the 206 participants, 75 were aged between 18 and 29 (36.4 percent), 66 between 30 and 41 (32 percent), 52 between 42 and 53 (25.2 percent), and 13 over 54 (6.3 percent). Fifty three percent had between zero and five previous convictions (108 participants), twenty four percent had between six and ten previous convictions (50 participants), and twenty three percent had over ten previous convictions (48 participants). Sixty-six participants were serving a sentence under five years (32 percent), 93 participants between five and ten years (45 percent), and 47 participants were serving a sentence over ten years (23 percent). Fifty-nine percent were convicted of a non-violent offence (121). Forty-one percent were convicted of violent offences (85).

Measures

Each participant completed the following measures;

Aggression Motivation Questionnaire (AMQ-I: Ireland, 2007). This 46 item self-report questionnaire asks participants to rate a number of motivations for their recent aggressive behaviour. Statements included 'I enjoy seeing people suffer', 'I have had to defend myself' and 'I wanted revenge'. These items were devised following a review of the aggression literature as part of an earlier unpublished study. Participants were asked to rate the personal relevance of each item on a Likert scale ranging from 1 (totally disagree) through to 5 (totally agree).

Offending Motivation Questionnaire (OMQ: Gudjonsson & Sigurdsson, 2004). This 22 item measure assesses motives for general offending (i.e. not restricted to aggression). Participants are asked to rate on a Likert scale from 1 (not a lot) through to 7 (very much) how relevant each item is to their own offending. Examples of items are, 'Needed money', 'to take revenge on somebody' and 'I was under the influence of alcohol or drugs and did not know what I was doing'. Items cover five main groups of motives; compliance, provocation, financial, excitement and consequences.

Multidimensional Anger Inventory (MAI: Sigel, 1986). This is a 38 item self-report measure. The MAI was developed to assess simultaneously the following dimensions of anger: frequency, duration, magnitude, mode of expression, hostile outlook, and a range of anger-eliciting situations. Participants are asked to rate on a Likert scale from 1 (completely not descriptive) to 5 (completely descriptive) the degree to which each item describes them. Examples include, 'it is easy to make me angry', 'I am secretly quite critical of others' and 'I often feel angrier than I think I should'.

Balanced Inventory of Desirable Responding (BIDR-6: Paulhus, 1991). The BIDR is a measure of an individual's tendency to provide socially desirable responses. Participants were asked to rate the degree that they agreed with 40 items, on a Likert scale ranging from 1 (not true) to 7 (very true). Examples of items were 'I always know why I like things', 'I never regret my decisions' and 'I sometimes tell lies if I have to'. The measure was used to control for any impact of social desirable responding on the measures (Suris et al., 2004).

Procedure

Ethical approval was obtained from a university ethics committee and from the research coordinator at the prison. It was stressed to participants that the research was anonymous and that their individual responses would be reported only as part of group data. Prisoners completed their questionnaires in their cell over the lunch hour. These were distributed as they collected their meals, and collected either when prisoners were unlocked after lunch, or via prisoners' posting them under their door during the lunch hour for collection by the researcher. An envelope was provided for all completed questionnaires to be returned in. Literacy difficulties were managed by researchers reading questions to individuals following which participants marked their responses discretely as required.

7.5 Results

Data screening

Two hundred and eleven measures were initially returned and screened to identify any outliers and unusual data patterns. Measures were treated as incomplete when 25 percent or more items were missing. This resulted in the removal of four cases. Missing values analysis revealed no systematic pattern in missing values; means, correlations and covariances, were all missing at random (Little's Chi-square [1, n=206] = 2.02, $p > .16$). Further analysis revealed nine cases (4.4 percent) with at least one missing value. This corresponded to only 0.1 percent of the total values collected. To generate values for these missing values, Multiple Imputation (Allison, 2001) was utilised. Multivariate outlier checks were also calculated using Mahalanobis distance and resulted in the removal of one further case. The data screening process resulted in a final total of 206 cases, which were then subjected to further analysis.

Factor analysis of Aggression Motivation Questionnaire

In order to identify themes within aggression motives, a Principal Component Analysis (PCA) was conducted on the 46 items of the AMQ with orthogonal rotation (varimax). The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis as excellent (Hutcheson & Sofroniou, 1999: $KMO = .91$). Bartlett's test of sphericity χ^2 indicated that correlations between items were sufficient for PCA ($[1035] = 5408.974, p < .001$). With regards to factor extraction, an initial analysis indicated nine components with eigenvalues over Kaiser's criterion of 1. In combination these components explained 63.3 percent of the variance. The scree plots were slightly ambiguous which led to a decision to utilise Parallel Analysis (see Thompson & Daniel, 1996; Velicer, 1976) as a more accurate approach. Following Parallel Analysis four factors were extracted, kept to items loading above .40. Table 7.1 shows the

factor loadings after rotation.

Table 7.1: *Factor structure of the Aggression Motivation Questionnaire (AMQ)*

Factor 1: Protection aggression motive	Factor loading
I have had to defend myself	.75
I have wanted to protect myself	.73
I was provoked by another	.69
I was trying to protect others	.65
I wanted to let others know I am not an easy target	.62
I was feeling fearful/afraid	.60
I have used it to release anger, frustration or tension	.60
I was reacting to another person making fun of me	.58
I wanted to assault someone before they assaulted me	.55
I wanted revenge	.54
I have used it to avoid doing something I did not want to	.45
I believe the world is a dangerous place and others will try to harm me	.44
I have believed that others are 'out to get me'	.42
Factor 2: Social recognition aggression motive	Factor loading
I wanted to gain a reputation	.71
I wanted to impress groups of peers and be accepted by them	.62
I wanted to release feelings of guilt or shame	.62
I wanted to 'prove' myself to my peers	.59
I believe the victim was going to be an 'easy target'	.56
I wanted to release feelings of jealousy	.56
I wanted to stop feeling alone	.51

I was trying to cope with my difficulties	.49
I want to stop others from gaining status	.48
I wanted to maintain the status I already have	.48
I have wanted to let others know that I am angry or frustrated	.40
I thought there would be few or no negative consequences	.40
Factor 3: Positive outcome motive	Factor loading
I believed it would have a positive outcome for me	.72
I am just believing in a way that has worked for me in the past	.67
It has helped me to increase my status among my peers	.60
I have used it to make others do what I want	.59
I have used it to protect my self-esteem	.54
I wanted to win the argument or conflict	.53
It has been a way of obtaining items from others	.52
I wanted to dominate and control others	.49
It has been a way of making sure others avoid me	.47
The environment I am in stops me from being non-aggressive	.30
Factor 4: Pleasure aggression motive	Factor loading
I have been fantasising about using aggression	.68
I have thoughts telling me to hurt others that won't go away	.67
I enjoy seeing other people suffer	.60
I have been responding to a mental illness	.59
My personality makes it more likely that I will be aggressive	.55
It is the only way I have of managing conflict with others	.51
I wanted to punish others who were 'getting at me'	.51

I wanted to humiliate the victim	.49
I have just been behaving in a way that others have told me to	.49
I wanted to be disruptive	.46
I wanted some fun and enjoyment	.42

Factor one (eigenvalues = 15.71) accounted for 14% of the variance and comprised 13 items. In general items reflected a *Protective* motivation factor. These 13 items showed internal consistency using Cronbach's alpha ($\alpha = .90$). Factor two (eigenvalues = 3.31) accounted for 13% of the variance and comprised 12 items. Items tended to refer to a *Social recognition* of aggression motivation. These 12 items were internally consistent using ($\alpha = .88$). Factor three (eigenvalues = 1.95) accounted for 12% of the variance and comprised 10 items, which pertained to a perception that the aggression had a *Positive outcome*, with the items internally consistent ($\alpha = .88$). Finally, factor 4 (eigenvalues = 1.75) accounted for 12% of the variance and comprised 11 items, which described a *Pleasure* motivation for aggression. This factor was also internally consistent ($\alpha = .86$).

Further analyses with AMQ subscales

All item loadings above .50 were used to calculate a factor score, in accordance to recommendations from Tabachnick and Fidell (2001). Descriptive results for each subscale (i.e. protection, social recognition, positive outcome, and pleasure) are presented in Table 7.2. A multivariate analysis of covariance was performed to investigate differences in aggression motives for different types of offenders (i.e. violent vs. non-violent). Participant scores on measures of anger and socially desirable responding were used as covariates. Preliminary assumption testing revealed no serious violations of the assumptions of normality, linearity, homogeneity of variances, homogeneity of regression slopes, or reliability measurements of the covariates. After adjusting for anger and social desirability, multivariate analysis indicated a significant difference between violent and non-violent offenders ($Wilks' \Lambda = 0.95, F(4,201) = 2.72, p < .05$).

Table 7.2: Mean scores by offence type for the AMQ, OMQ, MAI, and BIDR.

	Overall sample		Violent offence		Non-violent offence	
	(n =206)		(n = 85)		(n = 121)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
BIDR (social desirability)	12.98	6.20	12.81	5.77	13.10	6.51
MAI (anger)	98.80	26.67	99.54	21.35	98.27	30.00
			AMQ			
Protection	26.67	10.74	27.68	10.89	25.97	10.60
Social recognition	12.97	6.10	13.30	5.75	12.90	6.30
Positive outcome	15.50	7.15	16.70**	7.29	14.70	6.96
Pleasure	15.34	6.40	16.70*	6.21	14.58	6.33
			OMQ			
Compliance	12.08	7.74	13.15	7.83	11.33	6.62
Excitement	14.22	7.96	13.12	7.40	15.00	8.27
Provocation	17.47	8.78	19.75*	9.73	15.87	7.70
Financial	6.54	5.97	7.09	6.28	6.15	5.74

$p < .05$ ** $p < .01$ *

As shown in Table 7.2, analysis revealed significant differences between violent and non-violent offences on the factor, positive outcome (Factor three: $F(1, 201) = 4.38, p < .05, r = .13$), with violent offenders reporting this motivation more. The factor, pleasure, was also significantly different (Factor four: $F(1, 201) = 7.01, p < .01, r = .11$), again in favour of violent offenders reporting this more.

As a covariate, anger was significantly positively related to the positive outcome motive ($F(1, 204) = 9.31; p < .01$, partial eta squared = .04). There was a significant effect of socially

desirable responding on the positive outcome aggression motive (Factor three) after controlling for the effects of anger ($F(1, 204) = 14.14, p < .01$, partial eta squared = .06). In contrast, anger was again significantly positively related to the pleasure aggression motive (Factor 4: $F(1, 204) = 49.6, p < .01$, partial eta squared = .19), although socially desirable responding was not ($F(1, 204) = 3.40$ ns).

No significant differences were found between violent and non-violent offenders on the motivation factor protection (Factor one: $F(1, 201) = 1.41$ ns) or social recognition (Factor two: $F(1, 201) = .21$ ns). There was a significant relationship between anger and protection ($F(1, 204) = 21.30, p < .01$, partial eta squared = .09) and social recognition ($F(1, 204) = 19.57, p < .01$, partial eta squared = .088). A relationship was also found between the social recognition aggression motive and socially desirable responding ($F(1, 204) = 5.32, p < .05$, partial eta squared = .026). However, no relationship was found between social desirability and the protection motive ($F(1, 204) = 3.68, p > .05$, partial eta squared = .02).

This suggests that underlying motives for recent acts of aggression among prisoners convicted of a violence offence was more likely to be motivated by perceived positive outcomes and pleasure, compared to offenders with non-violent offences. These findings also indicate a strong relationship between anger and aggression motives. Social desirability, however, was only found to be related to aggression motivated by perceived positive outcomes and social recognition.

A further multivariate analysis of covariance was conducted to examine possible interactions between the sentence length (a marker of offence severity) and motives for aggression use. Preliminary assumption testing revealed no serious violations of assumptions. Descriptive results for each subscale (i.e. protection, social recognition, positive outcome, and pleasure) are presented in Table 7.3. After adjusting for anger and social desirability, multivariate analysis indicated no significant differences between sentence length and aggression motives (*Wilks' Lambda* = .94, $F(4, 201) = 1.61$ ns). Univariate analysis, however, revealed significant differences between participants with longer prison sentences and the Social recognition aggression motive ($F(2, 206) = 4.86, p < .05$). The covariate, anger, was significantly related to social recognition ($F(1, 206) = 20.1, p < .05$, partial eta squared = .09). There was also a significant effect of social desirability on the social recognition aggression motive ($F(1, 206) = 4.34, p < .05$, partial eta squared = .02).

Table 7.3 Mean scores by years for current conviction for the AMQ.

Sentenced to	Under five years (n=66)		Five to ten years (n=93)		Over ten years (n=47)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Protection	23.92	11.12	28.17	10.51	27.57	10.01
Social recognition	11.12	5.20	13.60	6.47	14.72*	6.51
Positive outcome	14.14	7.00	15.85	6.81	16.72	7.86
Pleasure	14.36	6.53	15.85	6.71	16.19	6.24

$p < .05$ *

Factor analysis of Offending Motivation Questionnaire

The OMQ was subjected to factor analysis using a Principal Components Analysis. A KMO of .81 and Bartlett's Test of Sphericity of 2251.985 ($p < .000$) were produced indicating factorability (Tabachnick & Fidell, 2001). PCA yielded five components, with eigenvalues greater than one, that explained 64 percent of the variance. Parallel Analysis was again employed and supported the extraction of four factors. Factors were extracted with item loadings above .40. The results of the analysis are outlined in Table 7.4.

Table 7.4: Factor structure of the Offending Motivation Questionnaire (OMQ)

Factor 1: Compliance.	Factor loading
Wanted to 'show off' to my friends	.79
To please my peer(s)	.76
Gave in to pressure from peer(s)	.70
To show how brave and daring I was	.68
I was asked by somebody to commit the offence	.61

I was tricked into it	.60
I did it because my friends were doing it.	.52
Factor 2: Excitement.	Factor
	loading
Did it for excitement	.87
Did it for fun	.78
Gave in to temptation	.70
I thought I would get away with it	.66
To relieve pressure or stress	.58
Did it because I was annoyed and bitter at society	.35
Factor 3: Provocation.	Factor
	loading
I was under the influence of alcohol or drugs and did not know what I was doing	.74
I lost control over myself	.73
To take revenge on somebody	.68
Wanted to cause damage to person or property	.66
I was defending myself	.57
I did not think about the consequences of what I was doing	.45
Factor 4: Financial.	Factor
	loading
In hope of financial gain	.91
Needed money	.91
Did it to finance alcohol or drugs	.77

The factors produced were broadly consistent with those previously reported by Gudjonsson

and Sigurdsson (2004) using a student sample, although the single item ‘consequences’ factor loaded onto the ‘provocation’ factor in the current study. Factor one, compliance, comprised seven items that largely reflected offending motivated by wanting to please others, to comply with instructions, or a result of being led by others. This factor had good internal consistency ($\alpha = .85$). Factor two, excitement, comprised five items. In general items tended to reflect offending motivated by enjoyment, relief, or pleasure. This produced an $\alpha = .80$. Factor three, provocation, contained six items, ranging from wanting revenge to defending oneself. This factor had an α of $.76$. Factor four, financial, comprised three items that largely reflected an offending motive fuelled by financial gain and reward. This had an internal consistency of $\alpha = .90$.

Further analyses with OMQ subscales

All item loadings above $.50$ were used to calculate a factor score. Descriptive results for each subscale (i.e. compliance, excitement, provocation, and financial) are presented in Table 7.2. Analysis of covariance was performed to investigate differences in offending motives for different types of offenders. Levels of anger and socially desirable responding were again used as covariates. There were violations of the assumptions multivariate analysis. Therefore univariate analyses were conducted as the data satisfied the required assumptions.

After adjusting for anger and social desirability, no significant differences were found between violent and non-violent offenders on the compliance offending motive (Factor one: $F(1, 203) = 2.64$ ns). However, there was a relationship between anger and compliance ($F(1, 202) = 13.2, p < .05$, partial eta squared = $.06$) and social desirability ($F(1, 202) = 4.99, p < .05$, partial eta squared = $.02$).

Similarly, there were no significant differences between violent and non-violent offenders on the excitement motive (Factor two: $F(1, 202) = 3.52$ ns) or the financial motive (Factor four: $F(1, 202) = 1.10$ ns). There were again significant relationships between covariates and motives, with a relationship between anger and the excitement motive ($F(1, 202) = 2.66, p < .05$, partial eta squared = $.01$), and between social desirability and excitement ($F(1, 202) = 4.89, p < .05$, partial eta squared = $.02$). Social desirability was also related to the financial offending motive ($F(1, 202) = 8.33, p < .05$, partial eta squared = $.04$). As a covariate anger was not, however, related to the financial motive ($F(1, 202) = 1.71$ ns).

A significant difference was found between violent and non-violent offenders on the

provocation motive (Factor two: $F(1, 202) = 10.1, p < .01$), with violent offenders more likely to cite this as a motive than non-violent offenders. Levels of anger were also significantly related to the provocation motive after controlling for the effect of social desirability ($F(1, 202) = 7.93, p < .01$). Finally, there was a significant relationship between provocation and social desirability after controlling for anger ($F(1, 202) = 5.92, p < .05$, partial eta squared = .03).

7.6 Discussion

This current study highlighted how motivation comprised a number of components. The presence of four salient aggression motives were indicated; protection, social recognition, positive outcome and pleasure. There was also consistency with the work of Gudjonsson and Sigurdsson (2004), using a student sample, with regards to general offence motivation. Four general offence motivations were noted: compliance; excitement; provocation; and, financial. Aggression and offence motivations differed between prisoners with violent convictions and those with non-violent convictions. Anger was also found to be an important factor with regards to all core aggression motivations, which suggests a role for reactive aggression across components (Raine *et al.*, 2005).

With regards to aggression motives, contrary to the prediction that there would be a dichotomy of proactive versus reactive, this was clearly not supported in the current sample. This is inconsistent with the literature proposing a distinction between these two different types of aggression (Ireland, 2008). The current study does provide some evidence of parallel between the findings and this reported distinction. For example, the protection motivation found in the current study was similar in description to uncontrolled behaviours in response to external provocation, self-defence and uncontrolled emotions. This is consistent with the 'reactive' dichotomy (Ireland, 2008). Similarly, the positive outcome motivation was similar to the definition of proactive aggression (Berkowitz, 1989) where emphasis is given to deliberate, planned, or organised actions. It may be reasonable to deduce from the results that an exclusive reactive-proactive distinction was not found, and that instead aggression in forensic populations may be explained better by a concept of 'mixed motives' (Gendreau & Archer, 2005; Raine *et al.*, 2006). Although the current results can only be described as preliminary, they nonetheless suggest a more comprehensive framework is required for forensic samples, one that moves away from a simple dichotomy. Focusing on underlying motivation is valuable as it provides the opportunity to examine individual, situational, and social level factors on

behavioural decision-making. As this study has demonstrated the use of self-report measures, such as the AMQ, may have utility in empirically and clinically examine motivation beyond dichotomy alone.

It is also worth noting the positive implications of the current research at a clinical level. It is apparent that efforts to understand aggression by merely considering overt behaviour (i.e. the nature of aggression as opposed to its motivation) will always have limitation in achieving a comprehensive understanding of the decision making processes that result in aggression (Ireland, 2008). Moreover, it is common practice for many clinical treatment programmes for aggression to assess suitability for intervention, solely on the basis of the overt nature of aggression, or at the most by categorising the behaviour as reactive or proactive. The current research has demonstrated how valuable information can be lost if behaviour motivation is not expanded beyond the rather crude reactive-proactive distinction.

Furthermore, use of the AMQ to explore additional research hypotheses revealed interesting findings. Those with violent and non-violent convictions differed in terms of their underlying motives for aggression. This was consistent with the assertions that motives play a pivotal role in behaviour (Ajzen, 1991; Cornish & Clark, 1986). Those convicted of a current violent offence were more likely to cite motives of positive outcome and pleasure for their aggression compared to offenders with non-violent convictions. There were no significant differences found on motives associated with protection or social recognition.

The finding that pleasure was a distinguishing aggression motive for violent offenders can be explained with reference to the concept of hedonism (Reiss, 2004). Hedonism asserts that any human behaviour, including aggression, is motivated by intrinsic and extrinsic pleasures and rewards (Reiss, 2004). The findings from the current study suggest that aggression for violent offenders is a behaviour driven by the need for intrinsic pleasure and extrinsic positive outcomes. These findings are also synonymous with the Theory of Planned Behaviour (TPB) (Ajzen, 1991) in that behaviours, with greater perceived benefits to the individual, are performed despite any associated consequence to others. Therefore, these findings provide further support for the principles outlines in TPB and also evidence the utility of TPB to aid our understanding of aggression and its motives.

In terms of differences between violent and non-violent offenders, anger was found have a

strong relationship with aggression motives. Overall anger explained a larger proportion of variance between violent and non-violent offenders (21 percent) than socially desirable responding (6 percent), and was related to the positive outcome aggression motive, and pleasure aggression motive in particular. Anger is thought to have both constructive and destructive qualities (Novaco, 1978; Wood & Newton, 2003), and a possible explanation for the relationship between anger and pleasure, is that anger may be responsible for the maintenance and intensification of arousal preceding or following an act of aggression (Sukhodolsky *et al.*, 2001). Furthermore, it could be speculated that anger is not confined to more classic reactive aggression motives (Crick & Dodge, 1996; Dodge & Coie, 1987; Hubbard *et al.*, 2004) but can extend beyond this. What the current study cannot determine, however, is whether anger acts as a precursor, bi-product or both with regards to aggression motivation.

The current study also found a relationship between socially desirable responding and a positive aggression motivation but not a pleasure motivation. This suggests that prisoners are less likely to respond in a socially desirable manner at assessment when recent acts of aggression are motivated by pleasure, whereas aggression used in the pursuit of positive outcome may result more readily in such responding. The reasons for this finding are unclear although an explanation may be located within the principles of TPB. For example, social desirability may serve as a means to justify the negative consequences inflicted on others when making the decision to aggress, or it could create more positive social appearances following acts of past aggression in order to support future acts of aggression. This may prove particularly functional in a prison (Irwin & Cressay, 1962; Toch, 1985). Alternatively, the negative relationship between pleasure motives for aggression and social desirability may be due to other factors, such as individual personality or mental health, none of which were assessed in the current study.

There are further interesting findings when the social recognition motivation on the AMQ is considered. Those serving longer prison sentences were more likely to report aggressing due to this motive than those serving less time in custody. This suggests a social and environmental influence for prisoners with longer custodial sentences. This again would fit with TPB where emphasis is placed on the importance of subjective norms in shaping our intrinsic motives and ultimately behavioural decision-making. Subjective norms should be expected to influence those with more time spent within the prison, linking to 'code of the streets' and prisoner

subculture theories (Anderson, 1994; Irwin & Cressay, 1962), where normative values and beliefs govern interpersonal behaviour and often emphasise the social benefit of certain behaviours (Irwin & Cressay, 1962; Toch, 1985), particularly aggression (Ireland, 2008).

The findings with regards to the structure of general offending motives were also interesting. The four factors extracted, (i.e. compliance, provocation, financial and excitement), were broadly consistent with the earlier student study of Gudjonsson and Sigurdsson (2004). This was thus supportive of the prediction made. There were slight differences, but these were inconsequential and a likely product of inherent differences between student and forensic samples. Indeed there was surprisingly close symmetry between the current study and that of Gudjonsson and Sigurdsson (2004) suggesting consistency in motivations for negative behaviour across samples.

As predicted, variations in offending motives were found between violent and non-violent offenders, although this focused on the provocation motivation. To a degree this supports the underlying assertions of the research by Gudjonsson and Sigurdsson (2004) that motives vary significantly according to the type of offences committed. However, no significant differences were found across the remaining motivations, although this may be explained by the method of offender classification utilised in the current study (i.e. violent versus non-violent). Interestingly, levels of anger *and* social desirability were found to be independently related to the provocation motivation. With regards to anger this is particularly synonymous with previous literature on the influence of emotions on an offender's thinking and behaviour (Cota-McKinely, Woody, & Bell, 2001; Novaco, 1997; Stuckless, Ford, & Vitelli, 1995). It is also consistent with the conclusions of Armitage and Connor (2001) who described mood as a moderator of intrinsic motivation and further supporting an application of TBP to the current results. The association with social desirability is a more challenging finding to explain owing to its novel nature. Nevertheless, it could be speculated that social norms are more forgiving of an act of aggression that is considered to be a product of being provoked. Thus the positive relationship between wishing to present oneself in a positive light (i.e. social desirability) and reporting to have been provoked is perhaps not unexpected. It would be interest to see if this applies beyond more extreme forensic samples.

Finally, previous research has highlighted a number of individual differences associated with aggression (Anderson & Bushman, 2002). Results from the current research suggest that

underlying motives are also capable of distinguishing between individuals. This supports Ireland (2008) who argued that exploring and examining underlying motives are more valuable in understanding individual aggression than merely describing how aggression is expressed. The current study has certainly supported the importance of exploring this area in more detail.

This study is not without its limitations though, which need to be acknowledged. Prisoners were sampled from a single prison establishment within a single geographical area. Therefore, generalisation of the findings and conclusions to the wider forensic population should be made cautiously. Furthermore, reliance on self-report could be a further limitation of the current research (Rosenbaum & Lavrakas, 1995), but challenging to address when exploring research of this nature. Finally, the method of classifying prisoners into violent offence or nonviolent offence is not without its limitations. This method was vulnerable to a potential under-reporting of offences and legal 'plea bargaining'. For instance, an offender convicted of a non-violent offence, and therefore allocated into the non-violent subgroup, may have indeed committed a violent offence that was never reported. However, it would also be reasonable to conclude that the majority of other empirical research with forensic samples adopting such a design would be vulnerable. What remains certain is the degree of difficulty in reducing or eliminating this effect in future research.

The current study does nonetheless provide valuable findings, highlighting the importance of examining motivation in both aggression and general offending. It also highlighted the importance of looking beyond more simplistic dichotomy approaches to describing motivation (i.e. reactive-proactive) to more comprehensive component approaches. It has also introduced a measure of aggression motivation (AMQ) and an existing measure of offence motivation not before applied to forensic samples (OMQ). Both have demonstrated applicability and utility to extreme samples. Finally, anger has been indicated to represent a fundamental emotion associated with a range of motivations, not just those classically related to more traditional descriptions of reactive aggression.

Even accounting for the limitations, this study provides a positive foundation for future study. Further research confirming the structure of these aggressive and general offence motivations would be of value, with further examination of the validity and reliability of the AMQ and OMQ to differing forensic and non-forensic populations. Finally, it would be beneficial for

motivation to be examined longitudinally to assess whether environmental factors exist which directly or indirectly influence a motivation to engage in negative behaviour (Anderson, 1994; Irwin & Cressay, 1962).

Chapter 8

STUDY TWO: AGGRESSION MOTIVATION IN PRISONERS: EXPLORING UNDERLYING COGNITION AND DEVELOPMENTAL FACTORS

8.1 Structure of the chapter

Building on the results from the previous study, this chapter examines the underlying components of aggression motivation and how they relate to cognition and developmental variables, considering whether distinct profiles amongst aggressive prisoners exist. Cognitive and developmental factors were examined in this study because of their prominence in the aggression literature. Details of this study's participants, methodology and results are outlined prior to a discussion.

8.2 Introduction

As noted in earlier Chapters, aggression is commonly classified on two specific dimensions. The first concerns its *form*, such as direct or indirect aggression, and the other the specific *motivation* underlying the behaviour (Ireland, 2011). Study one extended considerations of the *motivation* dimension through identification of four underlying components of such motivations namely, *protection, social recognition and emotional management, positive outcome* and *pleasure*. This suggested that the proactive versus reactive dichotomy is inadequate for describing aggression motivation amongst prisoners. This finding, however, requires further study to confirm its reliability.

As reviewed in Chapter 3, pathway models that describe the development of aggression exist (i.e. *parallel* and *sequential*). The applicability of these developmental models to prisoners, however, remains untested. Consequently, little is known about the early socialisation and subsequent developmental influences of forensic aggressors. Developmental theorists emphasise that the child-parent dyad is pivotal in the formation of secure or insecure attachments (Bowlby, 1984; O'Connor, 2002). As an extension of developmental considerations in this study, exploration of the association between attachment styles and aggression motivations was undertaken. Very limited research has considered this previously.

Chapters 2 and 4 reviewed the literature on cognition and aggression in detail. Whilst research has advanced our understanding of its association with aggression in child and general samples, consideration of cognition and aggression in forensic samples has been limited. In

particular, few studies have assessed the influence of cognitive schemata and normative beliefs on prisoners' aggression motivations. As such, cognitions are identified as an integral component in many integrated explanatory models of aggression (i.e. GAM: Anderson & Bushman, 2002; Algebra of Aggression Model; Megargee, 2011) and the need to consider this is highlighted.

8.3 Participants

Adult male prisoners were sampled from a medium-secure⁶ English prison. This was a separate and independent sample from the participants included in Study 1. A total of five hundred and sixty five questionnaires were distributed with 233 returned. The response rate was 41.2 per cent⁷. Regarding criminal convictions, 48% of participants had under five previous convictions (n = 101), 21% had between five and ten previous convictions (n = 45), and 31% had over ten previous convictions (n = 64). A total of 86 participants were currently serving a sentence for a violent offence (41%), and 124 participants were serving a sentence for a non-violent conviction (59%). Forty eight percent of participants had a conviction for a violent offence (n = 100), and fifty two percent had never received a conviction for a violent offence (n = 110). With regard to the number of previous prison sentences, 167 participants (79.5%) had been incarcerated under 5 times, 33 (15.7%) had been imprisoned between 5 and 10 times, and 10 participants (4.8 %) had been imprisoned over 10 times previously. Of the 210 participants, 48 were aged under 25 (22.9%), 63 between 26 and 35 (30%), 44 between 36 and 45 (21%), and 55 were over 46 years of age (26.1%).

8.4 Ethical considerations

The proposal for the study was presented to the Ethics Committee for the Psychology Department at the University of Central Lancashire and separately to the research coordinator at the prison. This was consistent with Her Majesty's Prison Service policy for researchers. Owing to the personal nature of the data being gathered by this study, such as participants' developmental histories, additional sources of support within the prison were identified. Their details and referral processes were incorporated into the study's documentation, including the initial briefing form and subsequent de-brief sheet. As a consequence, ethical approval was granted. A copy of all documentation and questionnaires used in this study is in Appendix 3.

⁶ Medium secure is a closed prison establishment for prisoners who do not require maximum security, but who pose a risk to the public that is sufficient to warrant their continued detainment.

⁷ This was lower than study 1 and somewhat anticipated, given the more personal nature of some measures that examined developmental experiences.

8.5 Materials

Five self-report questionnaire measures were employed as follows:

Aggression motivation questionnaire (AMQ; Ireland, 2007)

This measure was described previously in Chapter 7, and was used unchanged for this study.

The schema positive negative and affect scale (SPANA; Wilks-Riley & Ireland, 2012)

This is a 60-item questionnaire used to assess adaptive (30 items) and maladaptive (30 items) schema about the self and others. Statements included ‘I get on well with others’, ‘Other people are a pain’, ‘I am suspicious of others’, and ‘I am a worthless person’. Participants rated the relevance of each statement on a likert scale ranging from 1 = strongly disagree through to 5 = strongly agree. This quantitative measure examines six adaptive schemas (i.e. happy/sociable, hardworking, calm/controlled, caring, easy-going, and worthwhile), and seven maladaptive schemas (i.e. abandoned, mistrustful self/distrustful others, worthless, uncaring others, abusive others, intolerant of others, and affect). In previously published studies with prisoners and students (Wilks-Riley & Ireland, 2012), the following reliability outcomes were achieved; negative schemata $\alpha = .94$, positive schemata $\alpha = .90$, and total $\alpha = .84$. Factor analyses of the SPANA in these separate samples indicated generally acceptable model fit across indices [i.e. RMSEA = .06; GFI = .80] according to some researchers (Hu & Bentler, 1995) yet perhaps not all researchers (Byrne, 1994).

The Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991)

This measure was used to assess participants’ attachment styles. It is a four-item questionnaire that provides details of four main attachment styles and asks participants to rate the degree that each style best describes them. This measure assesses attachment within Bartholomew’s (1990) four-category framework (secure, fearful-avoidant, preoccupied, and dismissive-avoidant). Participants were instructed to complete this twice; one representing childhood attachment and one for their more recent adult attachment. Chapter 3 provides further details and a description of these. This measure’s reliability ranging from $\alpha = .72$ to $\alpha = .92$ in previous research (Fraley & Shaver, 2000; Scharfe & Bartholomew, 1994).

Aggression Developmental History Questionnaire (ADHQ; Ohlsson & Ireland, 2010)

This measure was developed based on the literature for the current study. Participants selected

one of a number of multiple-choice responses to indicate the relevance of each to their developmental experiences. Items from the positive parenting subscale included: ‘When you were younger, how much of the following did your parents/guardians give you encouragement, guidance, support, stability, praise?’, and ‘how would you describe the rules set by your parents/guardians when you were younger?’. Items were scored on two separate likert scales. The first in terms of rules ranged from 0 = ‘they never set any rules’ through to 2 = ‘they were stricter than other children that I knew’. The second concerning levels of ‘encouragement, guidance, support, stability, and praise’ ranged from 0 = ‘none’ through to 2 = ‘a lot’. Total subscale scores were calculated ranging from 0 to 12 with higher scores reflecting greater elements of positive parenting.

Items from the negative parenting subscale included, ‘When you were younger, did your parents/guardians ever smack you with an open hand or slipper, punch or thump you, hit you with an object such as a stick or belt?’ Participants rated the relevant response to each question on a likert scale ranging from 0 = ‘no never’ through to 2 = ‘often’. Total subscale scores ranged from 0 to 6 with higher scores indicating the presence of negative parenting. The positive childhood experiences subscale included questions on friendships and the degree of happiness felt in childhood. Items were scored on two separate likert scales, in terms of happiness this ranged from 0 = ‘none’ through to 4 = ‘all of the time’, and the friendships scale ranged from 0 = ‘more of a loner’ to 3 = ‘had more friends than other children’. Negative childhood experiences subscale examined issues such as the degree of sadness felt in childhood, and experiences of neglect, physical and/or sexual abuse. Participants rated their response to questions on two scales. The first concerning feelings of sadness ranged from 0 = ‘none’ to 4 = ‘all of the time’. The second with regard childhood experiences of neglect and abuse were rated with a ‘yes’ or ‘no’ response.

The final subscale, problematic childhood behaviours, examined some indices of childhood maladjustment, including expulsion from school, destruction of objects or property, physical violence, involvement in crime, hurting animals, and use of substances. Participants rated the presence or absence of items such as their engagement in criminality or aggression prior to the age of 12 years. A copy of this measure is included in Appendix 2 (p. 301-305).

Adult Aggression Normative Belief Scale (ANBS: Ohlsson & Ireland, 2010)

This measure was created for this study and was based on the aggression literature. This 10-

item questionnaire that asked participants to rate the acceptability of a number of normative aggression beliefs. Items included ‘Other prisoners would expect me to hit someone if they hit me first’, ‘Other prisoners would expect me to be aggressive towards staff’, ‘Other prisoners would expect me to put on “a front” and pretend to be tougher than I am.’ Participants were asked to score on a likert scale ranging from 1 = not at all through to 5 = definitely, the extent to which they perceived these statements to be relevant. A copy of this measure is included in Appendix 2 (p. 306).

8.6 Procedure

The procedure for participant selection and consent was identical to that adopted in study one (see Chapter 7). Participants completed all questionnaires in their cell over the lunch hour to aid privacy and protection of responses. Questionnaires were distributed as prisoners collected their meals, and collected either after lunchtime unlocked, or via prisoners’ posting them under their door during the lunch hour for collection by the researcher. An envelope was provided for all completed questionnaires to be returned in. Twenty one participants were unable to read and requested that the questions were administered orally. They then marked their responses discretely as required.

8.7 Results

Results are described in order of the core predictions made. A total of two hundred and thirty three questionnaires were initially returned and screened to identify any outliers or unusual data patterns. Nineteen cases were initially removed as more than 25% of the measures were not completed. The remainder were subjected to missing values. Missing data was replaced once it was determined that it was randomly missing. All values (means, correlations, and covariances) were missing at random (Little’s Chi-square [1, n=210] = 2.8, $p > .05$). Missing value analysis revealed eleven cases (5.2%) with at least one missing value. This corresponded to 1.6 percent of the total values collected. To generate values for this missing data, Multiple Imputation (Allison, 2001; Graham, Cumsille, & Elek-Fisk, 2003) was utilised with the procedure as per study 1. Full results and descriptive statistics are presented in Appendix 3.

Screening was undertaken for outliers and normality with total and subscale scores for all measures. Multivariate outlier checks were calculated using Mahalanobis distances. Cases with values of 58.03 or higher (Tabachnick & Fidell, 2007) were excluded, resulting in the removal of four further cases. The next step was to identify any univariate outliers. Scores

identified as deviant were assigned a score one unit lower (or higher) than the next most extreme score in the distribution. If this method was not employed, cases were assigned a score half a unit lower (or higher) than the most extreme score. This resulted in a final sample of 210 suitable for analysis (final inclusion rate of 37.2%).

The Kolmogorov-Smirnov statistic for all variables except the positive schema (SPANNA), negative schema (SPANNA), negative parenting (ADHQ) and positive childhood experiences (ADHQ) were non-significant ($p > .05$) indicating normality. For these scales histograms and Q-Q plots were reviewed with no evidence of significant clustering of values found. None of the skewness and kurtosis values went above ± 1.0 (Tabachnick & Fidell, 2007).

Cronbach's alpha was used to calculate internal reliability for all measures used⁸. With regard to the ADHQ subscales the following outcomes were achieved; positive parenting $\alpha = .83$ (6 items), negative parenting $\alpha = .80$ (3 items), positive childhood experiences $\alpha = .95$ (2 items), negative childhood experiences $\alpha = .57$ (6 items), and problematic childhood behaviours $\alpha = .87$ (10 items). For cognition the ANBS scale had a high internal reliability ($\alpha = .87$; 10 items). The result for the SPANNA subscales were as follows; positive schema $\alpha = .88$ (30 items), negative schema $\alpha = .93$ (30 items) and affect $\alpha = .60$ (5 items). With regard to attachment the following outcomes were achieved; secure $\alpha = .83$ (2 items), fearful $\alpha = .85$ (2 items), preoccupied $\alpha = .81$ (2 items), and dismissive $\alpha = .87$ (2 items).

⁸ George and Mallery (2003) provide the following guidelines for Cronbach alpha interpretations; $> .9$ = excellent, $> .8$ = good, $> .7$ = acceptable, $> .6$ = questionable, $> .5$ = poor, $< .5$ unacceptable.

Only two subscales, therefore, had poor internal reliability (i.e. SPANA affect scale [$\alpha=.60$] and the negative childhood experiences subscale of the ADHQ [$\alpha=.51$]). The affect scale had item correlations ranging from $-.39$ to $.45$, further indicating poor reliability. It was, therefore, decided to disregard this scale, given the core focus of this study was on developmental factors and cognition as opposed to affect *per se*. The item negative childhood experiences concerns physical/sexual/emotional abuse, sadness and physical/emotional neglect. Item correlations ranged from $.32$ to $.60$, thus raising further concerns in relation to reliability. This could be associated with the wording of the items, response scales used, or difficulties in distinguishing between these concepts. It was, however, decided not to disregard this scale due to its potential to capture significant developmental experiences, yet its limitations and caution with interpretation are highlighted here and discussed further in section 8.18.

8.8 Exploring developmental and cognitive differences between violent and non-violent prisoners

Predictions:

2a: Violent prisoners will differ from non-violent prisoners in terms of their developmental characteristics (Bowlby, 1984; Farrington, 2007; Moffitt & Caspi, 2001).

3a: Violent prisoners will differ from non-violent prisoners in terms of their cognitive characteristics (Huesman & Guerra, 1997; Milner & Webster, 2006; Young et al., 2003)

Descriptive statistics for the proposed developmental factors for each type of offender (i.e. violent or non-violent) are presented in Table 8.1.

Table 8.1. Descriptive statistics of developmental factors for violent and non-violent prisoners

Developmental factors	Violent (n=100)		Non-violent (n=110)		Total sample (n=210)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
ADHQ						
Positive parenting	3.7	2.3	3.6	2.1	3.7	2.2
Negative parenting	6.7	3.3	6.1	3.1	6.5	3.2
Positive childhood experience	4.4*	1.5	3.8	1.5	4.1	1.5
Negative childhood experience	5.5	1.3	5.8	1.3	5.6	1.4
Problematic childhood behaviour	7.1	3.0	6.9	3.0	7.0	3.0

Childhood RQ	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Secure	3.4	2.0	3.8	2.1	3.6	2.0
Fearful-avoidant	3.9	2.3	3.6	2.1	3.8	2.2
Preoccupied	3.2	1.9	2.9	1.7	3.1	1.8
Dismissive-avoidant	4.8*	2.0	3.8	2.0	4.0	2.0
Adulthood RQ	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Secure	3.70	2.1	4.0	2.2	3.9	2.1
Fearful-avoidant	3.8	2.1	3.3	2.0	3.6	2.1
Preoccupied	3.2	2.0	2.9	1.7	3.1	1.9
Dismissive-avoidant	5.2*	2.1	4.0	2.1	4.2	2.1

$p < .01^*$

A multivariate analysis of variance was performed to investigate developmental differences between types of prisoners (i.e. violent versus non-violent). Power analysis using G*Power (Faul, Erdeider, Lang & Buchner, 2007) demonstrated that a sample of 225 was required for this test to give an acceptable power of .80 (Cohen, 1988). The current sample produced a power of .75, which was slightly below accepted standards. There is further discussion as to the possible limitations of this in section 8.19. The analysis was however performed and a significant difference between prisoners on the combined developmental variables, $F(13, 196) = 2.83$, $p < .01$; Wilks' Lambda = .93, partial $n^2 = .09$. When results for each dependent variable were considered separately, the positive childhood experiences subscale was significant using a Bonferroni adjusted alpha of .001, $F(1, 208) = 8.25$, $p < .001$, partial $n^2 = .05$. An inspection of mean scores indicated that violent prisoners reported higher scores than non-violent prisoners.

In terms of attachment, the dismissive avoidant childhood, $F(1, 208) = 2.85$, $p < .01$, partial $n^2 = .08$, and adult, $F(1, 208) = 10.82$, $p < .01$, partial $n^2 = .09$, styles differed between prisoners. Mean inspection indicated violent prisoners reported higher scores for the dismissive-avoidant attachment styles. Acceptable power for these analyses was achieved by the current sample which was calculated at $\beta = .97$ using G*Power (Faul *et al.*, 2007).

Table 8.2 presents the descriptive statistics for the cognitive factors examined with regards to the differences between violent and non-violent prisoners.

Table 8.2. Means and standard deviation results from cognitive measures for violent and non-violent prisoners.

	Violent (n=100)		Non-violent (n=110)		Total (n=210)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
ANBS						
Total aggression normative beliefs	16.6*	9.9	9.2	7.9	13.3	9.8
SPANNA						
Positive schema scale	57.9	19.1	62.9**	15.4	60.7	17.7
Negative schema scale	91.4	23.1	86.8	21.9	89.4	22.6

$p < .01^*$ $p < .05^{**}$

Analysis of variance was conducted to explore cognitive differences between violent and non-violent prisoners. Acceptable power was reached for this test with $\beta = .99$ (Faul *et al.*, 2007). Results showed significant differences in normative aggression beliefs, $F(1, 208) = 32.59$, $p < .01$, partial $n^2 = .14$, and positive schemata, $F(1, 208) = 8.25$, $p < .05$, partial $n^2 = .02$. An inspection of mean scores indicated that violent prisoners had higher levels of normative beliefs and non-violent prisoners more positive cognitive schemata.

8.9 Developmental differences between aggressors

Predictions:

2b: Reactive aggressors will report more disciplinarian parenting practices than proactive aggressors (Dodge et al., 1997).

2c: Proactive aggressors will report more permissive parental practises than reactive aggressors (Poulin & Boivin, 2000).

As part of the AMQ, participants indicated whether their recent acts (last act/s prior to taking part in this study) of aggression reflected proactive, reactive or mixed motives. Responses were then utilised to separate participants into three groups to explore further hypotheses. Forty seven participants reported mostly proactive motives (22.4%), fifty six participants reported mainly reactive motives (26.6%), and one hundred and seven participants reported mixed aggression motives (51%). Descriptive statistics including means and standard deviations for the ADHQ are presented in Table 8.3.

Table 8.3. Mean scores on the ADHQ by aggression type.

ADHQ	Mainly Proactive (n = 47)		Mainly Reactive (n = 56)		Mainly Mixed (n = 107)	
	M	SD	M	SD	M	SD
Positive parenting	7.5	2.9	6.3	3.3	6.1	3.1
Negative parenting	3.3	1.7	3.6	3.3	3.8	2.3
Pos. child experience	4.5*	1.4	3.8	1.5	4.1	1.5
Neg. child experience	5.8	1.0	5.5	1.5	5.6	1.4
Prob. child behaviour	7.1	2.3	8.3*	2.7	6.3	3.3

$p < .01^*$

Analysis of variance was performed to examine developmental differences between types of aggressors. Given the current sample size acceptable power was reached for this test with $\beta = .94$ (Faul et al., 2007). A significant difference was found between aggressors at the multivariate level ($Wilks' \Lambda = 0.8$, $F(10:406) = 4.4$, $p < .01$, partial $n^2 = .08$). Further analysis was thus required to indicate direction of these differences, and this was undertaken using a Bonferroni adjusted alpha level of .001. Differences were found with adult proactive

aggressors reported more positive childhood experiences, $F [2:210] = 3.6, p < .001$, partial $n^2 = .04$, and positive parenting, $F [2:210] = 3.7, p < .001$, partial $n^2 = .03$, than either reactive or mixed types. The problematic childhood behaviours subscale also significantly differed with reactive adult aggressors reporting more of such behaviours than either proactive or mixed motive aggressors, $F [2:210] = 8.2, p < .001$, partial $n^2 = .08$.

LSD post-hoc tests were conducted to examine these significant differences⁹. They showed proactive aggressors scored higher than other aggressors on parental encouragement, routine and praise, and fighting in childhood. Reactive were higher on acting aggressively and destroying property than others. Mixed aggressors scored higher on getting punched/thumped by a parent or guardian, sadness in childhood, bullying others, committing crimes with peers and fire setting. Significant results are presented in Table 8.4.

Table 8.4. Significant results for Scheffe post-hoc tests further exploring developmental differences between aggressors.

	Factors	Mean Difference	p value¹⁰
Proactive scored higher than:			
Reactive	Parent encouragement	.32	<.001
Mixed	Parent encouragement	.29	<.001
Reactive	Routine	.14	<.001
Mixed	Routine	.27	<.001
Reactive	Praise	.24	= .09
Mixed	Praise	.34	<.001
Reactive	Fighting	.20	= .14
Mixed	Fighting	.21	<.001
Reactive scored higher than:			
Proactive	Acting aggressively	.10	= .23
Mixed	Acting aggressively	.22	<.001
Proactive	Destroying property	.20	= .10

⁹ Though LSD post-hoc tests have been criticised for their leniency, it was thought that the strict Bonferroni adjusted p value of .001 would ensure reporting of Type II errors is avoided.

¹⁰ Specific p values below .001 are not reported in line with recommended guidance (APA, 2010).

Mixed	Destroying property	.28	<.001
Mixed scored higher than:			
Proactive	Punched/thumped	.29	<.001
Reactive	Punched/thumped	.17	= .15
Proactive	Sadness in childhood	.37	<.001
Reactive	Sadness in childhood	.09	= .09
Proactive	Bullying	.32	<.001
Reactive	Bullying	.22	<.001
Proactive	Crime with peers	.21	<.001
Reactive	Crime with peers	.17	<.001
Proactive	Fire setting	.17	= .11
Reactive	Fire setting	.25	<.001

8.10 Exploration of attachment styles amongst aggressors

Predictions:

2d: A fearful/avoidant or preoccupied child and adult attachment pattern will be positively correlated with reactive aggression (Bowlby, 1984; Farrington, 2007).

2e: A dismissive attachment style will be positively correlated with proactive aggression (Farrington, 2007; George & West, 1999).

Descriptive statistics for all aggressors' childhood and adult attachment styles including means and standard deviations are presented in Table 8.5. Higher mean scores represent higher levels of agreement with the attachment style described.

Table 8.5. Mean scores for aggressors' child and adult attachment styles

	Overall (n = 210)		Mainly Proactive (n = 47)		Mainly Reactive (n = 56)		Mainly Mixed (n = 107)	
Childhood	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Secure	3.6	2.0	4.2*	2.1	3.3	2.0	3.5	2.0

Fearful-avoidant	3.8	2.2	3.2	2.1	4.0**	2.1	4.0**	2.2
Preoccupied	3.1	1.8	3.0	1.7	3.1	1.9	3.1	1.8
Dismissive-avoidant	4.0	2.0	4.3	2.1	3.7	2.1	4.1	2.0
Adulthood	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Secure	3.8	2.1	3.9	2.9	4.0	2.1	3.7	2.1
Fearful-avoidant	3.6	2.1	3.6	2.1	3.7	2.2	3.7	2.1
Preoccupied	3.1	1.9	3.2	2.0	2.9	1.7	3.1	1.9
Dismissive-avoidant	4.2	2.1	4.2	2.1	3.9	2.1	4.3	2.1
	$p < .01^*$				$p < .05^{**}$			

A MANOVA explored differences between the three aggression groups (proactive, reactive and mixed) on the four attachment subscales, namely secure, fearful, preoccupied and dismissive. The independent variables were the aggression motives, and the dependant variables the four attachment styles including secure, fearful-avoidant, preoccupied, and dismissive-avoidant. Acceptable power was achieved for this test with $\beta = .89$ (Faul *et al.*, 2007). A significant multivariate effect ($F [16:400] = 1.7$ $p < 0.01$, partial $n^2 = .06$) was found.

Post-hoc Scheffe test results showed that reactive and mixed motive aggressors reported higher rates of fearful avoidant childhood attachments than proactive aggressors ($F [2:210] = 3.3$, $p < .05$, partial $n^2 = .03$). Proactive aggressors reported higher rates of secure childhood attachments ($F [2:210] = 3.1$, $p < .05$, partial $n^2 = .03$) than the reactive or mixed types. There were no significant differences found between groups that considered adult attachments (secure: $F [2:210] = 1.5$ ns; fearful $[2:210] = .45$ ns; preoccupied: $F [2:210] = .72$ ns; dismissive: $F [2:210] = 3.7$ ns).

8.11 Exploration of cognitive differences between aggressors

The following predictions were examined:

2f: *Proactive aggressors will have a greater number of normative beliefs approving of their instrumental use of aggression than other types of aggressors (Huesmann & Guerra, 1997).*

2g: *Each type of aggressor (i.e. proactive, reactive and mixed motive) will have distinct*

cognitive schemas due to inherent differences in their developmental history and socio-cognitive functioning (Beck, 1999; Young et al., 2003).

Means and standard deviations for each aggressor on the cognitive measures are presented in Table 8.6.

Table 8.6. Means and standard deviations results from cognitive measures for proactive, reactive and mixed aggressors.

	Overall		Mainly proactive		Mainly reactive		Mainly mixed	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
ANBS								
Total aggression normative beliefs	13.3	9.8	9.7	9.8	13.6	9.7	14.8**	9.5
SPANNA								
Positive schema scale	60.7	17.2	55.8	18.4	61.2	16.8	62.8	17.6
Negative schema scale	89.4	22.6	85.1	22.3	91.0	23.4	91.0	22.3

** $p < .01$

Cognitive differences between aggressors were examined using analysis of variance. In the first analysis normative beliefs were examined between the three aggressor groups (proactive, reactive and mixed). Acceptable power was reached for this test with $\beta = .87$ (Faul et al., 2007). A significant difference between aggressors was found ($F [6:410] = 3.6, p < .01$, partial $n^2 = .09$). Post-hoc Scheffe tests indicated mixed aggressors had higher total normative beliefs than other aggressors. Significant results are presented in Table 8.7.

Table 8.7. Significant results for Scheffe post-hoc tests further exploring cognitive differences between aggressors.

Factors	Mean Difference	p value
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Mixed scored higher**than:**

Proactive	Normative beliefs	5.1	<.01
Reactive	Normative beliefs	1.2	<.01

Analysis of variance was used to explore differences between adaptive and maladaptive schemas across the three aggressor groups (i.e. proactive, reactive and mixed). Acceptable power was reached for this test with $\beta = .85$ (Faul *et al.*, 2007). A significant multivariate difference was found ($F [24:392] = 1.9, p < .01, \text{partial } n^2 = .10$). when univariate test results were considered with a Bonferroni adjusted alpha of .004, no significant differences were found between the groups on the adaptive schema subscales; happy/sociable ($F [2:207] = 1.1\text{ns}$), hardworking ($F [2:207] = 1.40\text{ns}$), calm/controlled ($F [2:207] = 2.0\text{ns}$), caring ($F [2:207] = 2.0\text{ns}$), easy-going ($F [2:207] = .60\text{ns}$), and worthwhile ($F [2:207] = .91\text{ns}$).

Nonetheless, significant differences on maladaptive schemas were found including with the distrustful self/mistrustful others ($F [2:207] = 4.6, p < .004, \text{partial } n^2 = .04$), uncaring others ($F [2:207] = 6.0, p < .004, \text{partial } n^2 = .03$), the abusive others ($F [2:207] = 8.0, p < .004, \text{partial } n^2 = .02$), and the intolerant others schemas ($F [2:207] = 9.4, p < .01, \text{partial } n^2 = .03$). Post-hoc tests indicated reactive aggressors scored higher on the mistrust negative schema, and proactive scored higher on the abandoned schema than other aggressors. Mixed motive aggressors scored higher on the uncaring others, abusive others and intolerant negative schema than other aggressors. These significant results are presented in Table 8.8.

Table 8.8. Significant results for Scheffe post-hoc tests exploring cognitive differences between aggressors.

	Factors	Mean Difference	p value
Proactive scored			
higher than:			
Reactive	Abandoned	.61	<.001
Mixed	Abandoned	.25	<.001
Reactive scored			
higher than:			
Proactive	Mistrust	2.24	<.001

Mixed	Mistrust	54	= .26
Mixed scored higher than:			
Proactive	Uncaring others	1.4	<.001
Reactive	Uncaring others	1.9	<.001
Proactive	Abusive others	1.4	<.001
Reactive	Abusive others	2.1	<.001
Proactive	Intolerant others	1.6	<.001
Reactive	Intolerant others	2.9	<.001

8.12 Exploring the components of aggression motivation

Prediction following study 1: The four-factor structure found in study 1 would be confirmed.

The four-factor model of aggression motivation, elicited from study 1, was analysed using Confirmatory Factor Analysis (CFA) to assess its fit to the current data. Item parcels rather than individual items were again used, and the procedure for the creation of each parcel can be found in Chapter 7. Further details in relation to the composition of parcel items are noted in Appendix 3. The first attempt of model fit (see figure 1, Appendix 3) with this data was not acceptable: $\chi^2(59)=114.32$, $p<.001$; GFI=.56; CFI=.42; RMSEA=.13; $n = 210$. Further attempts were made to improve fit through examination of Modification Indices (MI) and adding covariances, yet all had inadequate fit. Further details about the model revisions made and outcomes are noted in Appendix 3. It was, therefore, concluded that this study's data did not support a four-factor model of aggression motivation.

The failure to confirm a four-factor solution resulted in exploratory factor analysis (EFA) being conducted. Evidence supporting the use of EFA following a failed CFA in the same sample is available in the literature. For instance, during validation of the Juror Bias Scale (JBS: Kassin & Wrightsman, 1983) in the context of prior mixed results with regards to its factor structure (see Dexter, Cutler, & Moran, 1992; Kassin & Garfield, 1991; Kassin & Wrightsman, 1983), Myers and Lecci (1998) used both factor analytical techniques with an initial CFA followed by EFA. In this study the EFA indicated a slightly different factor structure (2 factor compared to a 3 factor solution). This revised factor model was re-examined in a separate sample using CFA and better model fit was found (Myers & Lecci, 1998). Other researchers have utilised this approach when conceptual structures are unclear (i.e. Cooper,

Smille, & Corr, 2010; Muldoon, Lowry, Prentice & Trew, 2005). The underpinning theoretical and empirical rationale for this analytical approach is that fundamental differences exist between these techniques, in that CFA is a theory-testing method as opposed to EFA that is a theory-generating method (Myers & Lecci, 1998; Stevens, 1996). On this basis the use of an EFA followed by CFA in the same data set is discouraged (Tabachnick & Fidell, 2007).

The AMQ was therefore subjected to Principal Component Analysis (PCA) with orthogonal rotation, as it was considered possible that variables would correlate. The sample size exceeded the recommended 50 participants per factor rule (Pedhazur & Schmelkin, 1991), and could be classified as between 'fair' to 'good' according to Tabachnick and Fidell (2007). The Kaiser-Meyer-Okin value was .94, exceeding the recommended value of .6 (Keiser, 1974) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance, supporting the factorability of the correlational matrix. Parallel Analysis (Horn, 1965) was utilised as a more accurate approach to item extraction (Velicer, 1976; Thompson & Daniel, 1996; Tabachnick & Fidell, 2007). Parallel Analysis indicated only three factors, which were extracted with item loadings above .40 retained. The three factors produced were: 'Pleasure and emotional management' (F1); 'Protection' (F2); and 'Positive social outcome' (F3). Table 8.9. shows the factor loadings after rotation.

Table 8.9. Factor analysis of the Aggression Motivation Questionnaire (AMQ: $n = 210$).

Item no	AMQ	Factor 1 loading	Factor 2 loading	Factor 3 loading
46	I have been fantasizing about using aggression	.70	.32	.24
24	I wanted to release feelings of guilt or shame	.68	.24	.26
30	I have been responding to a mental illness	.67	.46	.20
31	It is the only way I have of managing conflict with others	.65	.30	.42
45	I have thoughts telling me to hurt others that won't go away	.64	.15	.18
10	I enjoy seeing other people suffer	.64	.13	.36
9	I have just been behaving in a way that others have told me to	.63	.29	.25
16	My personality makes it more likely that I will be aggressive	.63	.36	.27
23	I wanted to release feelings of jealousy	.62	.28	.29
33	I was trying to cope with my difficulties	.61	.29	.22
27	I believed the victim was going to be an 'easy target'	.59	-.06	.35
17	I wanted to be disruptive	.58	.30	.12
20	I wanted some fun and enjoyment	.56	.10	.15
36	I wanted to dominate or control others	.53	.34	.40

14	I wanted to stop feeling alone	.52	.06	.39
40	I wanted to let others know that I am angry or frustrated	.51	.18	.26
18	I thought there would be few or no consequences	.46	.27	.39
44	I have wanted to humiliate the victim	.46	.26	.39
<hr/>				
37	I have wanted to protect myself	-.07	.80	.16
19	I have had to defend myself	.09	.77	.14
39	I have been provoked by another	.10	.75	.18
34	I was trying to protect others	.15	.74	.01
32	I wanted to let others know I'm not an 'easy target'	.32	.69	.18
21	I wanted revenge	.34	.66	.16
38	I wanted to assault someone before they assaulted me	.27	.65	.22
22	I was reacting to another person making fun of me	.34	.65	.26
41	I wanted to 'win' the argument or conflict	.28	.59	.36
5	I used it to release anger, frustration or tension	.39	.58	-.02
12	I wanted to punish others who were 'getting at me'	.23	.55	.30
25	I was feeling fearful/afraid	.40	.55	.21

11	The environment I am in makes me aggressive	.13	.53	.40
15	I believe the world is a dangerous place and others will try to harm me	.36	.49	.34
43	I have believed that others are 'out to get me'	.24	.46	-.12
<hr/>				
28	I wanted to gain a reputation	.14	.39	.76
35	I wanted to impress groups of peers and be accepted by them	.24	.28	.75
8	It has helped me to increase my status with my peers	.17	.18	.70
13	I wanted to maintain the status I already have	.24	.32	.68
26	I wanted to 'prove' myself to my peers	.36	.23	.64
1	I believed it would have a positive outcome for me	.19	.50	.61
2	I am just behaving in a way that has worked for in me in the past	.27	.46	.61
4	I have used it to make others do what I want	.54	.27	.59
7	It has been a way I can obtain items from others	.30	.26	.56
3	I have used it to protect my self-esteem	.09	.51	.55
29	I have used it to avoid doing something I did not want to do	.40	.32	.47
6	It has been a way of making sure others avoid me	.40	.33	.46
42	I want to stop others from gaining status	.27	.40	.45
<hr/>				

The first factor, *pleasure and emotional management* centred on aggression motivated by the satisfaction from the act, desires to achieve personal needs and the regulation of certain emotional states. This explained 43.4% of total variance and had an $\alpha = .94$. Factor two, *protection*, indicated aggression motivated by the defence of oneself and others, the management of negative emotion or provocation, or viewing others as threatening and hostile. This factor had an $\alpha = .93$ and explained 8.5% of variance. Factor three, *positive social outcome*, comprised aggression motivated by the enhancement of social status and reputation, coping with social influences and as a means of achieving perceived positive outcomes. This explained 4.6% of total variance and had an $\alpha = .94$.

8.13 Examination of developmental differences by AMQ motives

Using the three aggression motives identified via the AMQ as the grouping variable, further examination of developmental differences in aggression motivation was undertaken. Sixty one prisoners reported their dominant motive for recent aggression was pleasure (29.1%), one hundred and fourteen were motivated by protection (54.3%), and thirty five were motivated by positive social outcomes (16.6%). Descriptive statistics for each subscale are presented in Table 8.10.

Table 8.10. *ADHQ means scores for prisoners with differing AMQ motives*

ADHQ	Pleasure and EM AMQ 1 (n = 61)		Protection AMQ 2 (n = 114)		Positive outcomes AMQ 3 (n = 35)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Positive parenting	7.1*	2.9	5.5	3.2	5.2	3.3
Negative parenting	3.3	2.0	3.8	2.2	3.8	2.5
Pos. child experience	4.1	1.7	4.2	1.4	3.9	1.4
Neg. child experience	5.7	1.3	5.6	1.3	5.6	1.6
Prob. child behaviour	8.0*	2.5	7.0	3.0	5.1	3.0

$p < .01^*$

Analysis of variance was performed and a significant multivariate difference was found

between aggressors ($F [10:406] = 2.6$ $p < 0.01$, partial $n^2 = .06$). Acceptable power was achieved for this test with $\beta = .99$ as assessed via G*Power (Faul *et al.*, 2007). Further tests showed that positive parenting ($F [2:207] = 4.0$ $p < 0.01$, partial $n^2 = .04$) and problematic childhood behaviours ($F [2:207] = 10.7$ $p < 0.01$, partial $n^2 = .09$) significantly differed between aggressors. Post-hoc Scheffe tests indicated aggressors motivated by *pleasure and emotional management* scored higher on both these subscales. *Protection* motivated aggressors also scored higher than the *positive outcome* aggressors on the problematic childhood behaviours subscale. These significant results were at the adjusted alpha of $p < .01$ and are shown in Table 8.11.

Table 8.11. Significant results for Scheffe post-hoc tests further exploring developmental differences by AMQ motives.

	Factors	Mean Difference	p value
Pleasure and EM scored higher than:			
Protection	Positive parenting	1.53	<.01
Positive outcome	Positive parenting	1.87	<.01
Protection	Prob. childhood behaviour	.92	= .08
Positive outcome	Prob. childhood behaviour	2.81	= .11
Protection scored higher than:			
Pleasure and EM	Prob. childhood behaviour	-.93	= .07
Positive outcome	Prob. childhood behaviour	1.88	<.01

8.14 Examination of attachment differences using the AMQ motives

Analysis of variance was completed to examine attachment differences between aggressors using the AMQ motivations. Means, standard deviations and results are outlined in Table 8.12.

Table 8.12. Means and standard deviations for attachment scales by AMQ motives

	Pleasure & EM		Protection		Positive outcomes	
	AMQ 1		AMQ 2		AMQ 3	
	(n = 61)		(n = 114)		(n = 35)	
Childhood	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Secure	2.9	2.0	4.1*	1.9	3.3	2.0
Fearful-avoidant	3.9	2.2	3.8	2.2	3.4	2.2
Preoccupied	3.3	1.9	3.0	1.8	3.1	1.9
Dismissive-avoidant	3.6	2.0	4.3	2.0	4.0	2.1
Adulthood	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Secure	3.2	2.1	4.3*	2.1	3.5	2.2
Fearful-avoidant	3.7	2.0	3.7	2.2	3.0	1.9
Preoccupied	3.9	2.0	3.0	1.8	3.1	2.1
Dismissive-avoidant	4.0	2.2	4.3	2.0	4.0	2.4

p < .001*

The full factorial MANOVA revealed there was a significant multivariate difference between groups ($F [16:400] = 2.1, p < .001, \text{partial } n^2 = .08$). Acceptable power was reached for this test with $\beta = .99$ when calculated with G*Power (Faul *et al.*, 2007). For univariate tests an adjusted alpha level of .006 was utilised to reduce error reporting. Results revealed that aggressors motivated by *protection* reported more secure attachments in childhood ($F [2:207] = 7.4, p < .001, \text{partial } n^2 = .07$) and as adults ($F [2:207] = 5.6, p < .001, \text{partial } n^2 = .05$) than other groups. No other styles reached a level of significant difference (child fearful, $F [2:207] = .70\text{ns}$; child preoccupied, $F [2:207] = .63\text{ns}$; child dismissive, $F [2:207] = 2.8\text{ns}$; adult fearful, $F [2:207] = 2.3\text{ns}$; adult preoccupied, $F [2:207] = 1.1\text{ns}$; adult dismissive, $F [2:207] = .58\text{ns}$).

8.15 Developmental predictors of aggression motivation

Standard multiple regression analyses were conducted to assess which developmental characteristics predicted prisoners' aggression motivations. The variables entered were the three AMQ motives (*pleasure and emotional management*, *protection* and *positive social outcome*) as the dependent variables. Pearson's correlations were first examined to check for multicollinearity. All were below .7 as recommended for independent variables (Tabachnick & Fidell, 2007). Further analyses assured assumptions of normality, linearity and homoscedasticity were satisfied. To perform these regressions a sample of 91 was required to give a $\beta = .83$ (Faul *et al.*, 2007). A high level of power was therefore achieved with the current sample of 210. Table 8.13 details the results.

Using Cohen's (1988) guidance for interpretation¹¹, small positive and negative correlations were found between some aggression motivations, parenting practices, childhood experiences and behaviours. Problematic childhood behaviours were strongly negatively correlated with the protection aggression motive. A small positive correlation was found between the pre-occupied adult attachment style and the pleasure aggressive motive.

Regression analysis showed that problematic childhood behaviours and a preoccupied adult attachment style significantly predicted aggression motivated by *pleasure and emotional management* ($F [13, 196] = 2.6 p < .01$). The overall variance explained by the model was 38%. Problematic childhood behaviours made the largest unique contribution to the regression model (beta = 0.3). Scores on pre-occupied adult attachment also made a statistically significant contribution (beta = 0.2). Thus, aggressive behaviour motivated by pleasure was predicted by higher levels of pre-occupied adult attachment style and lower levels of problematic childhood behaviour. Other developmental variables were non-significant predictors (negative parenting $r = .00ns$; positive parenting $r = .17ns$; positive childhood experiences $r = -.27ns$; negative childhood experiences $r = -.01ns$; childhood secure attachment $r = .05ns$; childhood fearful attachment $r = .05ns$; childhood preoccupied attachment $r = .04ns$; childhood dismissive attachment $r = .03ns$; adult secure attachment $r = .05ns$; adult fearful attachment $r = .01ns$; adult dismissive attachment $r = .03ns$).

In the second regression analysis, negative childhood experiences was a significant predictor

¹¹ Cohen (1988) suggested the following guidance; small $r = .10$ to $.29$, medium $r = .30$ to $.49$, large $r = .50$ to 1.0 .

of aggression motivated by *protection* ($F [13, 209] = 6.1 p < 0.01$). The variance explained by the model was 29%, with negative childhood experiences making the only significant contribution ($\beta = 0.49$). Thus, aggression motivated by protection was predicted by higher levels of negative childhood experiences. Other developmental variables were non-significant predictors (negative parenting $r = .18ns$; positive parenting $r = -.20ns$; positive childhood experiences $r = -.09ns$; childhood secure attachment $r = -.05ns$; childhood fearful attachment $r = .07ns$; childhood preoccupied attachment $r = -.07ns$; childhood dismissive attachment $r = -.05ns$; adult secure attachment $r = -.05ns$; adult fearful attachment $r = -.07ns$; adult preoccupied attachment $r = .07ns$; adult dismissive attachment $r = .03ns$).

A further standard multiple regression indicated that problematic childhood behaviours, negative childhood experiences and an adult dismissive attachment style were significant predictors of aggression motivated by *positive social outcomes* ($F [13, 209] = 4.0 p < .01$). The overall variance explained by the model was 46%. Of these predictors, problematic childhood behaviours made the largest unique contribution ($\beta = 0.41$). Scores for adult dismissive attachment ($\beta = 0.21$) and negative childhood experiences ($\beta = 0.17$) also made a significant contribution to the regression model. Thus, prediction for use of the positive social outcome aggression motive amongst prisoners was by greater problematic childhood behaviours, more negative childhood experiences and a dismissive adult attachment pattern. No further predictions were significant (negative parenting $r = .02ns$; positive parenting $r = -.14ns$; positive childhood experiences $r = -.09ns$; childhood secure attachment $r = -.04ns$; childhood fearful attachment $r = .02ns$; childhood preoccupied attachment $r = -.00ns$; childhood dismissive attachment $r = -.03ns$; adult secure attachment $r = -.09ns$; adult fearful attachment $r = .02ns$; adult preoccupied attachment $r = .08ns$).

Table 8.13. *Correlational analysis of developmental and aggression motivation variables.*

	Pleas	Prot	Pos	PosPar	NegPar	PCE	NCE	PCB	CS	CF	CP	CD	AS	AF	AP	AD
Pleas	_	.61	.68	-.17**	.07	-.16**	-.00	-.27**	.00	.05	.04	-.03	-.05	-.01	.16*	.03
Prot	.61	_	.53	-.20**	.18*	-.09	.50**	-.03	-.05	.07	-.07	-.05	-.05	-.00	.00	.01
Pos	.68	.53	_	-.14*	.08	-.00	.02	-.39	-.04	.02	.00	-.03	-.09	.02	.08	.07
PosPar	-.17**	-.20**	-.14*	_	-.32**	.49**	.33**	.34**	.07	-.08	.16	-.22*	.14*	.01	.07	-.21*
NegPar	.07	.18*	.08	-.32**	_	-.39**	-.37**	-.32**	-.10	.03	-.05	.10	-.13	.02	-.05	.04
PCE	-.16**	-.09	-.00	.49**	-.39**	_	.22**	.12*	.11*	-.09	.02	-.26**	.08	.00	-.02	-.23**
NCE	-.00	.50**	.02	.33**	-.37**	.22**	_	.22**	-.10	-.03	.07	-.07	-.16**	.13*	.03	.18*
PCB	-.27**	-.03	-.39	.34**	-.32**	.12*	.22**	_	.06	-.01	.14*	-.01	.04	.01	.06	-.04
CS	.00	-.05	-.04	.07	-.10	.11*	-.10	.06	_	-.20*	-.08	-.11*	.70**	-.15	-.05	-.09
CF	.05	.07	.02	-.08	.03	-.09	-.03	-.01	-.20*	_	.20*	.11*	-.13*	.70**	.21**	.14*
CP	.04	-.07	.00	.16	-.05	.02	.07	.14*	-.08	.20*	_	.03	-.01	.15*	.69*	-.00
CD	-.03	-.05	-.03	-.22*	.10	-.26**	-.07	-.01	-.11*	.11*	.03	_	-.04	.15*	.07	.67**
AS	-.05	-.05	-.09	.14*	-.13	.08	-.16**	.04	.70**	-.13*	-.01	-.04	_	-.18**	-.11	-.13*
AF	-.01	-.00	.02	.01	.02	.00	.13*	.01	-.15	.70**	.15*	.15*	-.18**	_	.21**	.12*
AP	.16*	.00	.08	.07	-.05	-.02	.03	.06	-.05	.21**	.69*	.07	-.11	.21**	_	.04
AD	.03	.01	.07	-.21*	.04	-.23**	.18*	-.04	-.09	.14*	-.00	.67**	-.13*	.12*	.04	_

Key: Pleas: AMQ pleasure and emotional management; Prot: AMQ protection; Pos: AMQ positive social outcome; PosPar: ADHQ positive parenting; NegPar: ADHQ: negative parenting; PCE: ADHQ positive childhood experiences; NCE: negative childhood experiences; PCB: ADHQ problematic childhood behaviours; CS: Child secure attachment style; CF: Child fearful attachment style; CP: Child pre-occupied attachment style; CD: Child dismissive attachment style; AS: Adult secure attachment style; AF: Adult fearful attachment style; AP: Adult pre-occupied attachment style; AD: Adult dismissive attachment style.

** $p \leq .01$ all other significant correlations * $p \leq .05$

8.16 Exploring cognitive differences using AMQ motives

Using the three motives from the AMQ (*Pleasure and emotional management, protection, positive social outcome*), further consideration of cognitive differences between aggressors was undertaken. Descriptive statistics including means scores for all measures are presented in Table 8.14.

Table 8.14. Cognitive schemata descriptive statistics for aggressors by AMQ motives.

	Overall		Pleasure & EM		Protection		Positive outcomes	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
			AMQ 1 (n = 61)		AMQ 2 (n = 114)		AMQ 3 (n = 35)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
ANBS								
Total aggression normative beliefs	13.3	9.8	9.1	9.8	14.4	8.5	17.40**	9.5
SPANNA								
Positive schema scale	60.7	17.2	63.0	20.0	57.85	15.2	66.2**	19.4
Negative schema scale	89.4	22.6	90.7	24.0	88.4	20.3	90.4	27.6

** p<.01

Multivariate analysis of variance, with aggression motives as the independent variables and total normative beliefs, positive and negative schema as the dependent variable, indicated a significant difference ($F [6:410] = 5.6, p < .01, \text{partial } n^2 = .09$). Power analysis demonstrated that a sample of 120 was required and would give this a $\beta = .83$ (Faul *et al.*, 2007). Differences were found between normative beliefs ($F_{2:207} = 10.4, p < .01, \text{partial } n^2 = .09$) and positive schemata ($F_{2:207} = 3.8, p < .01, \text{partial } n^2 = .04$). Post-hoc Scheffe tests indicated aggressors motivated by positive outcomes had higher total normative beliefs and positive schemata than other aggressors. Significant results are presented in Table 8.15.

Table 8.15. Significant results for Scheffe post-hoc tests further exploring cognitive differences between AMQ aggressors.

Factors		Mean Difference	p value
Positive outcome			
scored higher than:			
Pleasure and emotion management	Normative beliefs	8.4	<.01
Protection	Normative beliefs	3.0	<.01
Pleasure and emotion management	Positive schema	3.3	<.01
Protection	Positive schema	8.4	<.01

8.17 Cognitive predictors of aggression motivation

Standard multiple regression analyses were utilised to identify cognitive predictors of aggression motivation (*pleasure and emotional management, protection and positive social outcomes*). Prior to conducting standard multiple regressions, a number of analyses checked for normality and linear relationships between the dependent variables and independent variables. No departures from test assumptions were identified. Checks for multicollinearity determined that no variables were too highly correlated (i.e. .7 or above according to Tabachnick & Fidell, 1996). To perform these regressions a sample of 117 was required to give a $\beta = .81$ (Faul *et al.*, 2007), and which was exceeded. Table 8.13 details the results. Tables 8.16 and 8.17 present the correlation coefficients across variables.

As shown in Table 8.16, small positive and negative correlations were found between the three aggression motives and normative beliefs. Moderate to large positive correlations were found between all normative aggression beliefs examined. A standard multiple regression analysis was first conducted between on the *pleasure and emotional management* aggression motive with the ten normative beliefs from the ANBS as predictor variables. No significant predictors were identified ($F [10,199] = .7ns$).

Table 8.16. *Correlational analysis of normative beliefs and aggression motivations.*

	Pleas	Prot	Pos	Ag Ag	Hit	Phys	Deser	Staff	Angry	Front	Tow	Want	Walk
Pleas	–	.61	.68	-.01	.00	-.06	-.01	-.04	-.05	-.12*	.03	-.03	.02
Prot	.61	–	.53	.01	.12	-.00	.02	.03	.02	-.11	.17	.12	.04
Pos	.68	.53	–	-.02	.09	-.03	.07	-.03	-.02	-.10	.12*	.03	.06
Ag Ag	-.01	.01	-.02	–	.44**	.67**	.62**	.65**	.58**	.46**	.48**	.62**	.44**
Hit	.00	.12*	.09	.44**	–	.44**	.62**	.32**	.45**	.18**	.65**	.31**	.53**
Phys	-.06	-.00	-.03	.67**	.44**	–	.69**	.69**	.66**	.44**	.51**	.67**	.56**
Deser	-.01	.02	.07	.62**	.62**	.69**	–	.58**	.66**	.34**	.66**	.52**	.64**
Staff	-.04	.03	-.03	.65**	.32**	.69**	.58**	–	.56**	.44**	.41**	.69**	.42**
Angry	-.05	.02	-.02	.58**	.45**	.66**	.66**	.56**	–	.36**	.56**	.53**	.55**
Front	-.12*	-.11	-.01	.46**	.18**	.44**	.34**	.44**	.36**	–	.32**	.60**	.46**
Tow	.03	.17**	.12*	.48**	.65**	.51**	.66**	.41**	.56**	.32**	–	.45**	.69**
Want	-.03	.12*	.03	.62**	.31**	.67**	.52**	.69**	.53**	.60**	.45**	–	.50**
Walk	.02	.04	.06	.44**	.53**	.56**	.64**	.42**	.55**	.46**	.69**	.50**	–

Key: Pleas: AMQ pleasure; Prot: AMQ protection; Pos: AMQ positive social outcome; Ag Ag: “Need to be aggressive towards others”; Hit: “to hit someone if they hit you first”; Phys: “to get into a physical fight show aggression”; Deser: “To be aggressive towards someone who deserves it”; Staff: “to be aggressive with staff”; Angry: “to be aggressive when angry”; Front: “To put on a front and pretend to be tougher than you are”; Tow: “Be aggressive when someone aggressive towards you”; Want: “To be aggressive to get what you want”; Walk: “Be aggressive to stop others walking over you”.

***p ≤ .01 all other significant correlations *p ≤ .05*

Table 8.17. Correlational analysis of adaptive and maladaptive cognitive schemata with aggressive motives.

	Pleas	Prot	Pos	Hap	Hard	Cont	Carin	Easy	Worth	Aban	Mistr	Worl	Uncar	Abus	Intol
Pleas	—	.61	.68	.01	-.03	.06	-.06	-.00	-.05	-.07	-.04	-.07	.02	.04	-.01
Prot	.61	—	.53	.06	.07	.10	.06	.01	.05	-.08	-.00	-.01	.06	.09*	.13
Pos	.68	.53	—	-.00	-.00	.19	-.02	-.04	-.03	-.07	-.02	-.03	-.00	.06	.05
Hap	.01	.06	-.00	—	.65**	.67**	.62**	.66**	.69**	.50**	.37**	.47**	.39**	.39**	.42**
Hard	-.03	.07	-.00	.65**	—	.68**	.70**	.49**	.70**	.35**	.24**	.48**	.24**	.27**	.32**
Cont	.06	.10	.19	.67**	.68**	—	.69**	.45**	.70**	.38**	.33**	.50**	.24**	.30**	.29**
Carin	-.06	.06	-.02	.62**	.70**	.69**	—	.43**	.62**	.26**	.16*	.33**	.15*	.18**	.21**
Easy	-.00	.01	-.04	.66**	.49**	.45**	.43**	—	.48**	.34**	.23**	.36**	.24**	.25**	.26**
Worth	-.05	.05	-.03	.69**	.70**	.70**	.62**	.48**	—	.34**	.22**	.50**	.24**	.25**	.28**
Aban	-.07	-.08	-.07	.50**	.35**	.38**	.26**	.34**	.34**	—	.66**	.59**	.68**	.61**	.54**
Mistr	-.04	-.00	-.02	.37**	.24**	.33**	.16*	.23**	.22**	.66**	—	.44**	.65**	.67**	.65**
Worl	-.07	-.01	-.03	.47**	.48**	.50**	.33**	.36**	.50**	.59**	.44**	—	.45**	.40**	.38**
Uncar	.02	.06	-.00	.39**	.24**	.24**	.15*	.24**	.24**	.68**	.65**	.45**	—	.68**	.68**
Abus	.04	.09*	.06	.39**	.27**	.30**	.18**	.25**	.25**	.61**	.67**	.40**	.68**	—	.65**
Intol	-.01	.13	.05	.42**	.32**	.29**	.21**	.26**	.28**	.54**	.65**	.38**	.68**	.65**	—

Key: Pleas: AMQ pleasure; Prot: AMQ protection; Pos: AMQ positive social outcome; Hap: SPANA Happy/Sociable; Hard: SPANA Hardworking; Cont: SPANA Calm/controlled; Carin: SPANA Caring; Easy: SPANA Easy going; Worth: SPANA Worthwhile; Aban: SPANA Abandoned; Mistr: SPANA Mistrustful self/Distrust others; Uncar: SPANA uncaring others; Abus: SPANA abusive others; Intol: SPANA Intolerant others; Aff: SPANA Negative affect. ** $p < .01$ all other significant correlations * $p < .05$

Regression analysis was conducted on the *protection* aggression motive using normative aggression beliefs from the ANBS as predictor variables. This analysis showed the beliefs ‘if someone is aggressive towards you’ and ‘to stop others walking over you’ predicted aggression motivated by protection ($F [10,199] = 2.8 p < .001$). The overall variance explained by this model was 34.9%. The belief ‘if someone is aggressive towards you’ made the largest unique contribution ($\beta = 0.36$) to the regression model, followed by the belief that aggression is acceptable ‘to stop others walking over you’ ($\beta = .27$). The protection aggressive motive was thus predicted by higher scores on these beliefs. No further normative beliefs were significant predictors (‘need to be aggressive’ $r=.01ns$; ‘to hit if hit first’ $r=.12ns$; ‘to get physical’ $r=.00ns$; ‘It’s ok they deserve it’ $r=.02ns$; ‘Ok to be aggressive with staff’ $r=.03ns$; ‘aggressive when angry’ $r=.02ns$; ‘to put on a front’ $r=-.11ns$; ‘to get what you want’ $r=.17ns$).

Standard multiple regression analysis was also conducted on the dependant variable, *positive social outcome aggression* motive, with the ten normative beliefs from the ANBS as predictor variables. No significant predictors were identified ($F [10,199] = 1.4ns$).

Regression analysis was conducted between on the *pleasure and emotional management* aggression motive with the thirteen SPANA schemata as predictor variables. There were no significant predictors identified ($F [10,199] = 1.0ns$). A further regression analysis was performed on the *protection* aggressive motive using the same predictor variables of the SPANA. The analysis showed that the intolerant others maladaptive schemata was a significant predictor ($F [17, 192] = 1.2 p < 0.01$). The variance explained by the model was 27.1%. The intolerant others schemata made the only significant contribution ($\beta = 0.20$). Therefore, use of the protection aggressive motive was predicted by higher scores on the intolerant others schemata. No further schemata were significant predictors (happy $r=.06ns$; hardworking $r=.07ns$; calm $r=.10ns$; caring $r=.06ns$; easy going $r=.01ns$; worthless $r=.05ns$; abandoned $r=-.08ns$; mistrust $r=-.00ns$; uncaring $r=.06ns$; abusive $r=.09ns$).

A final standard multiple regression analysis was performed on the *positive social outcome* aggressive motive using the thirteen predictor variables as for the other motives. The analysis showed that the calm/controlling adaptive schema was a significant predictor ($F [17, 192] = 1.0 p < 0.01$). This schema made the only significant contribution ($\beta = 0.29$) and explained 24.8% of the variance in the model. Use of the positive social outcome aggressive motive

was, therefore, predicted by higher scores on the calm/controlling schema. No further schemata were significant predictors (happy $r=-.00ns$; hardworking $r=-.00ns$; caring $r=-.02ns$; easy going $r=-.04ns$; worthless $r=.03ns$; abandoned $r=.07ns$; mistrust $r=.02ns$; uncaring $r=-.00ns$; abusive $r=.06ns$; intolerant $r=.05$).

8.18 Discussion

This study found that aggression motivation comprised multiple components. Contrary to prediction, however, a four-factor solution (see Chapter 7) was not supported and instead three core motivations (*pleasure and emotional management, protection, and positive social outcomes*) were identified. This finding further adds to the expanding evidence that the reactive versus proactive distinction (Raine *et al.*, 2006) is too narrow to account for the diversity of aggression motivation (Bushman & Anderson, 2001), especially with more extreme populations such as prisoners (Ireland, 2011). When the motivational components identified in this study are examined with regard to wider research and theory, further explanatory comparisons can be drawn. For instance, the repeated finding of a *protection* motivation is consistent with some previous research (Olson & Lloyd, 2005; Urheim *et al.*, 2014). The value of the current study over prior research is that it examined general aggression instead of towards a distinct group such as intimate partners or institutional staff.

Aggression motivated by *positive social outcomes* can also be linked to the existing aggression literature. The Theory of Coercive Action (Felson & Tedeschi, 1993), for instance, described how all acts of aggression are goal-orientated, and focused on the achievement of outcomes such as gaining compliance, restoring justice, and asserting and defending one's social identity. The component *pleasure and emotional management* is perhaps more challenging to link to research outside the current thesis owing to a notable absence of empirical attention on aggression motivation in the literature. However, the role of emotion and its management is a most prominent consideration in many integrated theories for aggression (Anderson & Bushman, 2002; Anderson *et al.*, 2007), which identify emotion as one of three key components of an intrinsic state that facilitates aggression (others are arousal and cognition). The need to gain intrinsic pleasure from desired actions also features in many motivational theories, particularly those that emphasise hedonism, a notion that all humans are driven to seek pleasure (Reiss, 2004; Rotter, 1954). Based on these theories, therefore, it is conceivable that pleasure and emotional management are a unified component of aggression motivation due to its significant crossover.

The apparent, but not identical overlap in motivations identified in studies of this thesis thus far indicate the componential structure of aggression motivation in forensic populations remains unclear at present. The *protection* motive was the only motive with cross-study consistency. In terms of the *emotional management* precept, this was associated with social recognition motivation in study one and pleasure motivation in study two. This could highlight individual differences in the samples investigated or the adaptable nature of emotion with regard to its influence on aggression motivation (Novaco, 2011). Sample differences could also provide an explanation for the separation of social recognition and positive outcome motivations in study one, and their combination into a more universal aggression motivation relating to positive social outcomes as found in study two. What is more certain is the need for further research to examine the component structure of aggression motivation with prisoners. Further evaluation of these components could provide the foundations of a functional model of aggression, which is empirically based and which extends consideration of aggression motivation beyond the limited reactive versus proactive distinction.

It was predicted that the developmental and cognitive characteristics of violent and non-violent prisoners (predictions 2a and 3a) would differ, based on previous study (Derzon, 2010; Huesmann, 1998; Moffitt, 2007). Significant differences were found as predicted, yet perhaps not all entirely consistent with this research. For instance, no differences were found between prisoners' problematic childhood behaviours at the subscale level. A number of distinguishable developmental characteristics (with onset prior to the age of 12 years); such as greater levels of emotional abuse, fighting, aggression, committing crime with peers and destroying property have long been implicated for their influence on general delinquency (Farrington, 1992; Moffitt, 2007). Some research has begun to disentangle their pathways to delinquency, for instance Allen (2011) evidenced how emotional abuse in childhood is linked to later violence through increased emotional dysregulation and hostile beliefs towards others.

Nonetheless, these seminal longitudinal studies are not faultless. Despite providing rich information on the characteristics that differentiate delinquents from non-delinquents/desisters, which was their fundamental aim (Farrington & West, 1990; Moffitt, 2007), they provide more limited understanding of the characteristics that define differences between prisoners (i.e. violent vs. non-violent prisoners). The results from this study thus add further insight into this neglected area, building on some existing studies (Derzon, 2010). As the current study asked an alternative question to previous longitudinal research, its findings

were different with regard to the developmental characteristics of prisoners. For example, violent prisoners reported more positive childhood experiences than non-violent prisoners. A number of explanations could exist for this finding.

First, these more positive experiences reported in childhood could result in vulnerabilities towards their future violent offending, such as through parental praise for pro-violence attitudes or actions. This also would fit with the literature concerning antisocial parents influence on later delinquency (Farrington, 1992). Secondly, this finding could be associated with recall bias or violent prisoners seeking to present their developmental experiences in a more socially desirable view. Thirdly, given that negative childhood experiences differentiated prisoners from non-prisoners (Moffitt, 2007), this finding could emphasise the biological and temperament basis of violent as opposed to non-violent prisoners, which could be underpinned by adverse developmental experiences. This is a view also suggested by others (Engstrom *et al.*, 1990; Ferguson *et al.*, 2007). Finally, violent offending could be associated and underpinned by characteristics other than developmental factors such as cognition or situational influences. Such explanations certainly warrant further evaluation through examining research questions that previous studies have not asked to date.

The notion that cognitive characteristics can differentiate violent and non-violent prisoners is strengthened by this study's findings of significant differences in their normative aggression beliefs and cognitive schemata. As predicted (3a), violent prisoners significantly differed from non-violent prisoners with regards to the number and nature of the normative aggression beliefs they endorsed. These are cognitive structures concerned with individuals' perceived acceptability of aggression (Huesmann & Guerra, 1997). The literature emphasises that such beliefs have a pivotal role in aggression, particularly through filtering decision-making and behavioural responses to environmental stimuli (Huesmann, 1998). The current study thus adds to the more limited literature base that has examined prisoners' aggression normative beliefs with consistent findings (Bowes & McMurrin, 2013).

As predicted, differences in terms of cognitive schema between prisoners were also identified. Non-violent had higher positive schemata compared to violent prisoners. As cognitive schemata are emphasised for their developmental basis (Young *et al.*, 2003), these findings further indirectly support the developmental basis of delinquency (Farrington, 1994; Moffitt, 2007). The result that violent prisoners overall had less positive schema is also consistent with

previous literature, which indicated that some prisoners had a more limited range of cognitive structures that favoured aggressive and violent action (Ireland, 2009).

Developmental factors in childhood were equally examined for their influence on adult aggression. It was predicted that reactive aggressors would report to have experienced more disciplinarian and proactive types more permissive parenting (predictions 2b and 2c). As predicted (2c) it was found that proactive aggressors experienced higher levels of positive parenting and childhood experiences when compared to reactive or mixed motive aggressors. Greater encouragement, routine and praise were particularly indicated in this analysis. Contrary to prediction (2b), however, reactive aggressors were not subjected to more disciplinary parenting compared to other types of aggressors.

Prior to this study, empirical investigation of the influence of parenting practices on prisoners' aggression motivation was limited. The finding, therefore, that proactive aggressors reported greater levels of encouragement, routine and praise from their parents in childhood, supports application of some aspects of existing developmental models of aggression, often devised from the study of non-forensic populations, to prisoners. For instance, the *Sequential Developmental Pathway Model* of aggression (Vitaro & Bredgen, 2005) emphasised how early reactive aggression opens the gateway to proactive through social reinforcement and goal attainment. The *Parallel Pathway Model* also described how proactive aggression is the result of more supportive environments and ones that expose the individual to role models such as a parent that fosters coercive behaviours through reinforcement (Dodge, 1991).

No significant differences were, however, found between reactive and proactive aggressors in terms of their experiences of negative parenting. This was not as predicted and is also contrary to assertions made by existing development pathways. The *sequential* (Vitaro & Bredgen, 2005) and *parallel* models (Dodge, 1991) contend that such early developmental experiences influence aggression. They differ, however, in terms of their projected pathways to aggression; one emphasises how both types develop independently (parallel model), and the other as a sequential developmental process from beginning with reactive and ending in proactive (sequential model). Given that no significant differences were found in terms of reactive and proactive aggressors' experiences of negative parenting, it could be reasoned that most experience some form of negative parenting in childhood. There is some empirical evidence supporting this, such as the longitudinal study of Vitaro *et al.* (2006), which

concluded that harsh parenting and negative emotionality in early childhood characterised the experiences of both reactive and proactive aggressors.

The failure to find significant differences in terms of negative parenting between aggressors also indicates that not all aspect of existing developmental pathways are not applicable to prisoners. This could be linked to the inherent differences between the populations utilised in their creation and validation (i.e. general compared to forensic samples). This further supports the calls for caution prior to the automatic adoption of general explanatory models and frameworks to more specialist populations such as prisoners (Ireland & Ireland, 2011). There is need, therefore, for a specific integrated model of aggression for prisoners, which attends to their unique developmental experiences. Current developmental models also experience difficulty in explaining mixed motive aggression, which is their most frequently cited limitation (Fite *et al.* 2009; Ireland, 2011). This could be due to the fact that very few studies have fully examined the developmental correlates of mixed motives aggressors, preferring instead to examine reactive or proactive types only.

In this study significant developmental differences were found between mixed motive and both reactive and proactive aggressors. In terms of the childhood parenting they experienced, mixed motive aggressors were most likely to report being punched and thumped by their caregiver. They also reported greater levels of sadness in childhood, bullying other children, fire setting and committing crimes with their peers. Further developmental differences between all types of aggressors are apparent when their reported problematic childhood behaviours are considered. Aggression towards peers and destroying property were most reported by reactive aggressors, whereas proactive aggressors reported increased rates of physical fights in childhood. These findings provide intriguing insights into the possible developmental indicators that underlie the behaviours of varying types of aggressors. However, these findings cannot be easily or comprehensively explained by either the *sequential* (Vitaro & Bredgen, 2005) or *parallel* (Dodge, 1991) models when considered in their purest form.

As existing developmental models experience difficulty in accounting for the diversity in aggression motivation, the need for an alternative developmental perspective is apparent. The idea of a *Simultaneous development pathway* model for aggression is thus proposed. This *simultaneous* model draws upon the principles of previous models, such as the notion that one

form of aggression can become habitual and develop independently of the other (as described by the parallel model, Dodge, 1991), but also incorporates the principles of individual and environmental reinforcement of aggression (as indicated by the sequential model, Vitaro & Bredgen, 2005).

A key difference with this theoretical model is that action reinforcement for motivations occur simultaneously, and thus strengthening aggressive response tendencies and decisions towards the individual's capacity to act. Speculatively, this model could explain the resulting development of mixed motive aggression over time through the reinforcement of mixed motives and indeed the presence of multiple motives within the same incident. These are all areas where previous models have significant difficulty (Fite *et al.* 2009; Ireland, 2011).

A simultaneous pathway model underpinned by action reinforcement is equally capable of encapsulating the developmental factors that influence aggression even when its motivational components are not the traditional reactive versus proactive distinction. Indeed, the provisional three or four aggression motivation components indicated by this thesis could also be neatly incorporated and formulated within this revised model. For instance, results from this study indicated that *pleasure and emotional management* motivated aggressors reported more positive parenting with higher levels of praise and routine than other groups. They also reported more problematic childhood behaviours in the form of being aggressive towards others, bullying, setting fires and destroying property than the other two groups. These results could reflect the hypothesised developmental experiences, vulnerabilities towards aggression and aggression motivation generation and action stages of the simultaneous model respectively. The simultaneous pathway model as outlined is, however, largely theoretical in nature with the findings from the current study providing only tentative evidence, with its direct validation a further necessary requirement. There is, therefore, need to pursue further empirical evidence to support or discard this model.

With regard to another prominent developmental factor, it was predicted that a fearful child and adult attachment style would be related to reactive aggression (prediction 2d). As predicted, reactive and mixed motive aggressors had elevated rates of fearful-avoidant childhood attachments. Despite variations in titles, the classification of attachments in children and adults is somewhat analogous in the literature (see Chapter 3). A fearful avoidant style is characterised by discomfort with emotional closeness, difficulties in trusting others,

and being highly fearful of abandonment and rejection (Bartholomew & Horowitz, 1991). This study's finding that fearful-avoidant childhood attachment was linked to adult aggression supports Bowlby's (1973) contention that aggressive and other externalized behavioural difficulties are predominantly a function of insecure attachment. However, an explanation as to why adult reactive and mixed-motive aggressors in particular had elevated rates of fearful avoidant attachment in childhood requires more detailed consideration. Several studies with community and clinical samples have found that the fearful avoidant attachment style was positively linked to affect dysregulation and instability, particularly states of intense anger. This was considered to reflect a conflict between desiring, although experiencing discomfort or fear of abandonment or rejection from others (Grattagliano *et al.* 2015; Levy *et al.*, 2005; Meyer, Pilkonis & Beevers, 2004; Oshri *et al.*, 2015). Emotional dysregulation is also characteristic of both reactive and mixed motive aggressors and therefore parallels can be drawn between these concepts here.

Toth and Cicchetti (1996) described a 'maladaptive pathway' whereby caregivers' failings to meet infants' basic emotional needs result in their negative models of relationship figures and externalised behaviours that reach beyond childhood. They may learn to over- or under-regulate their affect and behaviour in response to triggering events (Oshri *et al.*, 2015; Sroufe, 1983;). Insecure fearful attachments could, therefore, result in reactive and mixed aggression as a consequence of parents not being responsive and supportive, which then induces states of anger and hostility towards others. Related to this, the current study's finding can also be viewed in terms of Cicchetti *et al.*'s (1990) essential features of attachment, which outline the importance of *function*, *outcome* and *set goal* of attachment behaviours. Application of these features to the relationship between childhood fearful avoidance attachment and reactive or mixed motive aggressors could reflect the fact that their emotionally-driven aggression serves as a means of protection from danger (function), assists to regulate their distance from close attachments with others (outcome), and thus establishes a state of comfort and security (set goal).

It was also predicted that a dismissive attachment style would be related to proactive aggression (prediction 2e). Contrary to this, however, it was found that proactive aggressors reported increased rates of secure childhood attachments with caregivers. This finding is inconsistent with Bowlby's (1973) assertions that insecure attachments are the primary developmental basis for aggression. It is also contrary to previous research that linked secure

attachment to reduced rates of aggression (Scharfe, 2002; Simons, Paternite, & Shore, 2001). The result is, however, consistent with the literature that argued that all internalised attachment systems may involve displays of aggression in certain contexts (Fonagy *et al.*, 1997). Again, utilising Cicchetti *et al.*'s (1990) considerations of attachment behaviours, proactive aggression could be used as a means of maintaining closeness to an attachment figure (function), achieves the desired attention from caregivers who respond to the behaviour (outcome), which establishes a continued state of control and security through the attachment relationship (set goal).

According to attachment theory, styles developed in infancy are maintained into adulthood through biased perceptions and cognitions linked to an internal working model (Bowlby, 1984, 1973; Brumbaugh & Fraley, 2006; Fraley, 2002). The current study, however, found no significant differences between types aggressors in adulthood, despite some differences being found in childhood. This result casts doubt on the concept of attachment stability throughout the life span (Bowlby, 1984; Brumbaugh & Fraley, 2006). Explanations for the particular trajectories found, from fearful avoidant and secure childhood attachment to reactive and mixed and proactive aggression in adulthood, are unclear at present.

Some research has found evidence of the attachment stability over time and linked attachment patterns to aggression. For instance, insecurely attached adolescents were more likely to be engaged in reciprocally aggressive dating relationships than are securely attached adolescents (Bookwala & Zdaniuk, 1998). Other studies have compared certain groups, such as general and clinical samples, and found variation in terms of prevalence rates for specific attachment styles and externalised behaviours such as aggression (Ramos-Marcuse & Arsenio, 2001; Scharfe, 2002). Disparity in findings between studies in terms of attachment stability could, therefore, be due to sample differences.

In the current study there was one exception to the general finding that aggressors' childhood attachments were not continued into adulthood. Aggressors motivated by *protection* as measured by the AMQ reported elevated rates of secure attachment as children and adults. This provides some evidence for the principle of attachment stability among prisoners. It also indicated that even securely attached individuals might utilise aggression in particular contexts, such as when a threat is perceived or when there is need to protect others (Fonagy *et al.*, 1997). A concern in relation to this finding, however, was that it was deduced from self-

report measures of attachment that have faced some criticism (see Chapter 3). Childhood attachment evaluations were also retrospective in nature and thus could be open to recall bias. These possible limitations are further discussed and reviewed in section 8.19. Limited research has attempted to explore and disentangle the complex relationship between attachment and generalised aggression in adult prisoners. This study attempted to address this and yet possibly has raised more questions than answers. It is perhaps evident that further research on attachment and aggression with forensic populations is needed.

The combined influence of attachment and other developmental factors in aggression were emphasised by the results of this study. Analyses undertaken aimed to identify whether unique predictors exist for each aggression motivation as identified by the AMQ. The findings provide an intriguing insight into the multiple factors that impact on the aetiology of aggression in prisoners. Problematic behaviours and a childhood preoccupied attachment were identified as the primary predictors of adult aggression motivated by *pleasure and emotional management* (AMQ 1). This attachment pattern is characterized by dependence on others for acceptance and sense of personal well-being, a tendency to become over-involved or idolisation of others and emotional fragility (Allen *et al.*, 2002; Bartholomew, 1991; Oshri *et al.* 2015). The finding that preoccupied attachment was linked to general aggression is consistent with some past research in non-offending samples (Allen, Moore, Kuperminc, & Bell, 1998; Grattagliano *et al.* 2015; Savage, 2014).

Allen *et al.* (2002) explained that this association could be due to individuals with preoccupied attachment feeling threatened when faced with increased autonomy in life, resulting in their aggressive actions in order to reduce any negative affect and promote more positive states. However the finding that both problematic childhood behaviours and preoccupied attachment were important developmental predictors of this aggression motivation is less well understood and more novel. It is perhaps unclear whether these problematic childhood behaviours are indeed a cause or consequence of preoccupied childhood attachment.

Associations between childhood maltreatment and aggression in children and adults have been widely acknowledged (Chen, Coccaro, Lee, Jacobson, 2012; Savage, 2014). In the current study, negative childhood experiences including sadness, abuse and neglect, were found to be a significant developmental predictor of aggression motivated by *protection* (AMQ 2). This is

consistent with much of the existing literature and extends this association to adult forensic aggressors, which was a much neglected area of study (Savage, 2014). The finding that negative childhood experiences are a specific predictor of aggression motivated by *protection* is novel and was not fully examined by previous research, due to a tendency to focus on forms of aggression rather than on motivation (i.e. Sansone, Leung & Weiderman, 2012). One explanation for this association could be that such negative childhood experiences result in maladaptive cognitions and social information-processing deficiencies that favour the use of aggression in response to perceived requirements to protect the self or others from harm. Another explanation is that traumatic and negative childhood experiences contribute to an impaired capacity for self-regulation in later life, particularly in contexts of perceived fear and threat, which could link to the notion of self/others protection (Savage, 2014). However, only further research with increased focus on aggression motivation, will tease out the various strands of the likely complex relationship between negative childhood experiences and aggression, including the factors moderating it.

Identified developmental predictors of adult aggression motivated by *positive social outcome* were problematic childhood behaviour, negative childhood experiences and a dismissive-avoidant adult attachment style. It is noteworthy that problematic childhood behaviour and negative childhood experiences were also significant predictors of other aggression motivations as described in the preceding paragraphs. The possibility, therefore, that these factors are ubiquitous developmental markers for aggression is difficult to refute, and theoretical review studies indicate that such negative childhood experiences result in ‘neurobiological wounds’ that influence several domains of the individuals’ functioning (Reavis & Looman, 2013). From another perspective the finding that an adult dismissive-avoidant attachment style was specific to this motivation is also of particular interest.

In the attachment literature, avoidance of close relationships is a tenet of both the fearful and dismissive styles, although the defining characteristic of dismissive-avoidant individuals is their more positive view of self and negative view of others. This premise could provide a possible explanation for the association found between this attachment style and aggression motivated by positive social outcomes. It is theorised that dismissive-avoidant attachments emerge from inconsistent and invalidating relationships with primary caregivers in childhood. When internalised by the individual they may perceive themselves as more important than others, thereby resulting in reduced connectedness and empathy (Savage, 2014).

Use of this aggression motive could thus serve an adaptive function towards the continued promotion of their view of self and maintain a dismissive stance towards others. This could also be intertwined and linked with hostility and mistrust of others and the use of aggression in certain contexts may serve as a means of maintaining or enhancing their social status (Tedeschi & Felson, 1994). This finding is, however, contrary to the literature that examined intimate partner aggression, which often indicated a significant role for preoccupied rather than dismissive attachments (i.e. Dutton *et al.*, 1994). This perhaps highlights the need for researchers to examine the developmental moderators linked to aggression motivation separately in terms of both the target (i.e. specific or generalised) and perpetrator (i.e. prisoners or non-prisoners) of aggression.

In this study cognitive variables were examined in relation to aggression motivation. It was predicted that proactive aggressors would have more normative beliefs supporting their use of aggression (prediction 2f). Contrary to this prediction, mixed motive aggressors were found to have higher total normative beliefs compared with either reactive or proactive types. This study was one of the first in the literature to distinguish mixed motive from others and examine individual differences with regard to cognitions related to aggression. This finding is, therefore, difficult to compare with other studies due to their scarcity (Bowes & McMurrin, 2013). It could, however, be further understood with reference to Huesmann's model of aggression (1998).

Huesmann (1998) described how individuals' behavioural scripts are filtered through normative beliefs. These beliefs impact on contextual evaluations, influence affective states experienced, and determine script/s retrieved and implemented. Therefore, a greater number of normative beliefs amongst mixed motive aggressors could explain their diverse use of aggression through their increased access to multiple motivations and scripts. Reactive or proactive aggressors may differ in terms of having a more limited range of normative beliefs and ones that activate certain scripts. This view is somewhat consistent with previous research by Ireland (2001) who found that forensic bullies compared to non-bullies had a narrow range of non-aggression scripts. This, in addition to the current finding, may indicate that certain types of aggressors have not only a more narrowed range of scripts, but perhaps also ones that favour certain types of aggression. There is certainly need for further examination and validation of this with other samples. This study has, nonetheless, advanced the literature by providing further insights into and possible associations between underlying cognitive factors

and mixed motive aggression.

As normative beliefs influence the likelihood of aggression (Huesmann & Guerra, 1997), there could be identifiable cognitive indicators of each type of aggression. Such indicators would certainly be of value to professionals involved in risk assessment and management of aggression in forensic clients. Many empirically-driven risk assessments (Douglas & Belfrage, 2013) acknowledge the importance of evaluating maladaptive beliefs, yet they provide limited guidance in terms of individual beliefs that require consideration with regards to aggression. Assisting the direction and focus of therapeutic interventions that aim to restructure beliefs related to habitual aggression could be another advantage of identifying and confirming these cognitive characteristics.

Aggressors motivated by *positive social outcomes* as measured by the AMQ were found to have more normative beliefs. This result provided some empirical support for Ireland and Murray's (2005) Applied Social Information Processing Model, which argued that prison environments can encourage the strengthening of normative beliefs in response to the inmate code, and the use of aggression could serve an adaptive function such as improving one's social status or achieving a positive outcome in a hostile environment (Ireland, 2002). According to this theory, therefore, a positive association would exist between aggression motivated by positive social outcomes and increased number of normative beliefs. Other assumptions of this model (see Chapter 2) remain untested by empirical research and clearly warrant such attention. Moreover, the possible advantages of developing population specific psychological models of aggression to assist our insight and knowledge are further highlighted by this finding.

This study's final prediction was that each type of aggressor would have distinct cognitive schemas (prediction 2g). Schemata are stable cognitive structures, developed through childhood and influenced by subsequent experiences, which are responsible for social information-processing, contextual appraisals and affective reactions. Schemata are thus capable of motivating and/or inhibiting behavioural responses to triggering events. Maladaptive schemata result from unmet core emotional needs in childhood, whereas adaptive schemata emerge from these needs being met that underlie their subsequent purposeful functioning (Young *et al.*, 2003). Contrary to prediction, the current study found no significant differences between reactive, proactive and mixed motive aggressors with regard

to adaptive schemata. As predicted, however, differences were found between aggressors in terms of maladaptive schemata. Reactive types had higher rates of *distrustful self/mistrustful others* schemata, and mixed motive aggressors had higher rates on the *uncaring, abusive and intolerant others* schemata. The negative *abandonment* schema was prominent and distinguished proactive aggressors from other types.

To date, the current study was the only research to have examined adaptive schemas and aggression in prisoners. Its findings, therefore, that no significant differences exist is not only contrary to the contentions of Schema Theory (Young *et al.*, 2003), but it is also challenging to explain due to the lack of empirical attention. However, one explanation for this finding could be that most prisoners have a more limited number of adaptive schemas, thus making identification of differences arduous. It would thus be interesting to compare offending and non-offending samples in terms of adaptive schemata.

Another explanation can be drawn from the principles emphasized by the Applied Information Processing Model (Ireland & Murray, 2005), in that detained prisoners may be unable to access their more adaptive schemata due to the nature of the prison environment, which can often be hostile, confrontational, and subjected to both formal and informal rules (Ireland, 2002). Their inability to access and regularly utilize their adaptive schemata may result in their diminishment over time and strengthening of opposing maladaptive schemas. Consideration of prisoners in different settings, such as those in open or closed prisons and those in the community would provide useful information towards the evaluation of this hypothesis. A further explanation could be that all prisoners lack insight into their more adaptive schemata. Therefore, use of a self-report methodological approach as undertaken here for their assessment would have limitations. Use of other approaches, such as autobiographical life maps or interview-based research methods could be useful. Researchers certainly need to dedicate greater attention to this neglected area of study in order to advance our current limited understanding (Gilbert *et al.*, 2013). Further testing of these hypotheses would be a useful starting point.

Regarding maladaptive schema, the finding that reactive aggressors had higher scores on the *mistrustful self and distrustful others* schemata can be linked to some previous studies (Gilbert *et al.*, 2013; Tremblay & Dozois, 2009). It is perhaps surprising that greater similarity can be drawn between the current study and that which involved non-prisoners (Tremblay & Dozois,

2009) as opposed to prisoners (Gilbert *et al.*, 2013). Yet the current study was the only one that examined motivation rather than forms of aggression. Therefore, comparisons with these studies should be made tentatively. The finding that a mistrustful schema was specifically related to reactive motivation is, however, consistent with other evidence in the literature. For instance, Calvete *et al.* (2005) using a non-forensic population indicated a positive association between mistrust schemata, hostile attributions, reduced self-control and elevated anger. These are all characteristics and attributes associated with reactive aggression (Raine *et al.*, 2006).

As stated previously, mixed motive aggressors are subjected to less research attention compared with other types. The results from this study, therefore, provide some novel insights into their maladaptive schemata, which included that *others are uncaring and abusive* and that mixed motive aggressors also have an *intolerant of others* schema. The schemas that others are uncaring and abusive could explain the increased levels of social isolation and peer rejection among some aggressors, as indicated in the literature (Ladd *et al.*, 2014). Reactive aggressors in particular are said to be more unpopular and experience greater peer rejection than proactive aggressors, a finding often explained by their temperamental vulnerabilities and interpersonal functioning difficulties (Coie & Dodge, 1990; Dodge *et al.*, 1990; Ladd *et al.*, 2014). The current result suggests there could be merit in extending this view to include mixed motive as well as reactive aggressors, as their aggression and maladaptive views of others could certainly culminate in such interpersonal functioning difficulties. Consideration of the role of cognitive schemata could also provide greater understanding of the causal associations between peer rejection and aggression, which is an area that remains subject to continued causal debates, as the role of cognitive schemata has not yet entered into this (Gilbert *et al.*, 2013; Vitaro *et al.*, 2007).

Gilbert *et al.* (2013) found positive associations between dependency schemas and aggression. This has some parallels to the current finding that proactive aggressors had elevated rates of maladaptive abandonment schemata. Both these results perhaps contrast with many previous studies that indicated proactive aggressors experienced greater social acceptance and faced less rejection from peers (Ladd *et al.*, 2014). At the underlying cognitive level, however, it could be that proactive aggressors experience greater sensitivity to rejection and abandonment, resulting in their increased efforts towards the maintenance of certain affiliations or relationships with like-minded peers. Their goal-directed aggression could

equally be functional in avoiding possible experiences of abandonment or in maintaining emotional detachment from others, thus reducing the emotional burden of abandonment (DeLa Rue & Espelage, 2014; Taylor *et al.* 2008). Further crossover exists between this explanation and the dismissive attachment style found among proactive aggressors, as discussed in the preceding paragraphs.

Young *et al.*'s (2003) contention that particular blends of maladaptive and adaptive schemata underpin and characteristically influence affect and interpersonal functioning in predictable ways was partially indicated by the results from the current study. Its opponents would argue doubt exist as differences were only found for maladaptive as opposed to both adaptive and maladaptive. However, it is interesting that no individual schemata crossed over between reactive, proactive or mixed motive aggressors. Further support is perhaps illustrated by the findings that prisoners motivated by positive social outcomes as measured by the AMQ had elevated rates of the *worthlessness* maladaptive and on the *hardworking*, *calm and controlled*, and *caring* adaptive schemata. Individually each of these schemata could be associated with use of this aggression motivation. For instance they were using aggression to achieve positive social outcomes in response to the activation of a worthlessness schema. Another example would be the pursuit of perceived positive social outcomes through aggression in contexts that create dissonance between the individual's *hardworking* or *calm and controlled* adaptive schemata and actions of others, such as those who as are dysregulated or not wanting to engage in purposeful work. However, whether these schemas contribute to aggression collectively or individually via their simultaneous activation remains unclear and cannot be deduced from this study. There is need for additional theoretical consideration and replication through research to examine the mechanisms linking these schemata to the specific aggression motivations.

Finally, analyses were undertaken to consider whether unique cognitive predictors exist for each aggression motivation as identified by the AMQ. In terms of the results for normative beliefs, no particular beliefs were indicated as predictors of aggression motivated by *pleasure and emotional management*. As the core feature of this motivation concerns affect, this finding perhaps questions the role of certain cognitions, such as normative beliefs, in emotionally-driven aggression motivations. This is broadly consistent with the assertions made by Zajonc's affective priming hypothesis, which indicated that emotional responses and behaviours can be evoked by limited or subconscious cognitions (Zajonc, 2003).

In contrast, two particular normative beliefs as assessed by the ANBS namely, ‘if someone’s aggressive towards you its ok to respond with aggression’, and ‘using aggression is ok to stop someone walking over you’, were indicated as significant cognitive predictors of aggression motivated by *protection*. As such beliefs capture perceived social norms and individuals views towards the acceptability of aggression, their identification provides insight into the cognitive factors that underpin this particular aggression motivation. An explanation for this particular association could be drawn from the attribution literature (Epps & Kendall, 1995; Heider, 1958; Kelley, 1967). For instance, if an offender perceives another’s actions with hostility, and perceive the use of aggression as a means of protection is acceptable and socially approved, he or she may be more likely to utilise this aggression motivation. This can also be linked to core aggression theory which outlined the strong influence that normative beliefs have on aggressive behaviour (Huesmann & Guerra, 1997) and it adds some further support to the application of these principles to prisoners (Bowes & McMurrin, 2013).

Nonetheless, normative beliefs were not found to be significant cognitive predictors of aggression motivated by *positive social outcomes*, a finding that is perhaps contrary to Huesmann’s contentions that such beliefs influence acts of aggression (Huesmann & Guerra, 1997). It could be that as the range of potentially positive outcomes which function to motivate aggression are wide ranging they may not be easily accounted for or underpinned by normative beliefs alone. A notion that is supported by the finding that a particular cognitive schema, *calm and controlled*, was a significant predictor and explained a significant proportion of variance in aggression motivated by positive social outcomes. As schemata are an overarching cognitive structure encapsulating beliefs, they may provide a greater framework for understanding the cognitive factors related to aggression motivation rather than certain beliefs. The result that another cognitive schemata, *intolerant of others*, was a significant predictor of aggression motivated by protection further supports this view. However, the paucity of existing literature on cognitive schemata and aggression motivation severely limits comparison between the current and previous studies. This also impacts on the depth and detail of explanations with regard to the association between certain schemata and particular aggression motivations with any explanations given possibly being limited to the current study. Additional considerations of the gaps in this literature and within others relevant to this study are examined further below.

8.19 Limitations of this study

This study has limitations that require acknowledgement. One limitation was its reliance on self-report measures to examine underpinning factors of interest to aggression motivation. A potential concern from their use is the introduction of biased responding, particularly in relation to evaluations of developmental upbringing and childhood attachment among adults, which can be prone to recall bias (Coolican, 2014). The low reliability (alpha) values for some subscales of certain measures used, such as the *negative childhood experiences* subscale of the ADHQ or the *negative affect* subscale of the SPANA, could be indicative of this. Yet these were only a limited number of subscales across all measures used and indeed the majority had excellent reliability coefficients.

Another limitation was the marginal statistical power achieved for one of the analysis that examined developmental differences between violent and non-violent prisoners. Reduced statistical power limits the chance of detecting a true effect and likelihood that a statistically significant result reflects a true effect (Button *et al.*, 2013). The possibility of a type II error in the acceptance of the current hypothesis must thus be acknowledged and further research with a larger sample recommended ($n > 225$).

A further possible limitation concerns the measures used. Due to a lack of suitable and validated equivalents for detained adult prisoners in the literature, some measures were specifically devised for this study, such as the ADHQ and ANBS. These measures were not piloted prior to the current research or indeed subjected to extensive validity analyses. This should be noted when interpreting the conclusions and considering the implications of this study. Measure development was not the overarching aim of this research, however, replication of this study and validation of these measures represents the only means to prove or disprove its findings. With regards to the ANBS in particular, this new measure focused on the aggression beliefs of other prisoners and not of non-prisoners more generally. This could be a limitation given the possibility that prisoners could have more extreme beliefs than general populations. Yet its primary focus in this study was to examine differences between prisoners and not to compare prisoners and non-prisoners. The SPANA is another relatively new measure yet subjected to extensive empirical investigation. It remains the only assessment measure to include adaptive as well as maladaptive cognitive schemata. Its use is perhaps justified by its prior application with prisoner and non-prisoner samples, analysis and acceptable model fit across indices according to some criteria (Hu & Bentler, 1995), and

publication in a peer-review journal. The novel focus of this study warranted use of these newly developed measures, however, their limitations must be accepted.

Similar to study 1, prisoners were sampled from a single prison establishment, and another limitation could, therefore, be the difficulty in generalising these findings and conclusions to other forensic populations. Any such generalisations should be made cautiously with their further validation encouraged. Finally as indicated in the results section, a few items of the AMQ failed to load satisfactorily onto a related component factor during analysis. This could possibly be a limitation of this new measure, although the robust methodology of factors extraction maintained the integrity of this analysis, a contention supported by the internal reliability values for each factor after extraction, which were satisfactory.

8.20 Directions for future research

The study provides invaluable insights into many neglected areas of study and highlights the importance of examining aggression motivation rather than merely considering the form aggression takes. The finding that a three-factor component model was most suitable for this study's sample, compared with the four-factor solution as found in study 1 is certainly one clear direction that requires further research.

In terms of the developmental characteristics of aggression motivation, a number of important avenues for future investigation were highlighted by this study. Primarily, by accounting for the limitations noted by previous researchers with regard to existing pathways, an alternative simultaneous pathway model for aggression was proposed. This model is capable of addressing the limitations of prior models as well as accounting for the results from this study. This model remains largely theoretical, however, and it thus requires further empirical testing and validation. It would also be beneficial for future research to continue the task commenced by this study of paying greater attention to the developmental characteristics that influence aggression motivation specifically.

With regard to the cognitive characteristics of aggression motivation, the current study explored variables of interest to aggression that had received limited previous examination. This included consideration of the role of normative beliefs and schemata in aggression motivation amongst prisoners. Replication and further appraisal of the current findings with another larger forensic population would be advantageous to their generalisation and

validation. Collectively, further research could be vital towards improving our understanding and examining the value of existing integrated models of aggression, such as the GAM (Anderson & Bushman, 2001) and all their related components to prisoners beyond what was achieved by this study.

The current research thus far has neglected two core characteristics clearly indicated by the aggression literature namely, personality and inhibition. The next study will, therefore, explore the role of personality traits and emotion regulation in aggression motivation and examine aggression inhibition in respect of the factors that influence self-control.

Chapter 9

STUDY THREE: THE ROLE OF EMOTION REGULATION AND PERSONALITY IN AGGRESSION MOTIVATION AND INHIBITION

9.1 Structure of the chapter

Building on the findings of the previous two studies, this research further examines the characteristics and components of aggression motivation and inhibition. The association between aggression motivations and inhibitors with interfering personality disorder traits and emotion regulation strategies is examined. These concepts are incorporated in particular, as developmental, affect and cognitive factors are linked to personality. Exploration of aggression inhibition is important and is examined here for its association with factors known to be related to aggression, such as personality and emotion regulation. The introduction section provides a brief overview of the empirical literature so as to set this study's specific hypotheses in context. This is followed by the presentation of the methodology and the results, prior to a discussion of findings.

9.2 Introduction

The literature suggests adverse developmental experiences, affective states and cognitions are intertwined with personality and aggression. The influence of personality traits on aggression is, however, a much neglected area of study. Consequently, existing integrated models (i.e. GAM: Anderson & Bushman, 2002) lack depth in terms of the personality characteristics that underlie aggression and non-aggression. Some general personality traits, such as neuroticism or irritability, have been related to increased aggression (Sharpe & Desai, 2001). The limited research that has considered interfering personality disorder traits indicates that individuals with odd or eccentric disorders (DSM-IV cluster A) are generally less aggressive than those with dramatic and erratic disorders (DSM-IV cluster B). It is indicated that the anxious and fearful disorders (DSM IV cluster C) display the least aggression (Esbec & Echeburua, 2010). However, no research has fully examined the relationship between personality disorder traits and aggression motivations or inhibitions in detained adult prisoners. This also includes the examination of plausible associations between personality, affect regulation and aggression motivations in this population. There is thus a need to address this through focused research.

Theorists describe how personality is inextricably linked with emotion (Plutchnik, 2003). Gross (2014) argued that effective emotion regulation is fundamental to adaptive or maladaptive functioning. Emotion is also a core component of the classic reactive versus proactive distinction of aggression motivations (Raine *et al.*, 2006). Emotion regulatory differences between reactive and proactive types have been established, for instance, low frustration tolerance and poor regulation with reactive aggression and reduced levels of emotional reactivity with proactive aggressors (Hubbard *et al.*, 2002; Vitaro, Brendgen, & Tremblay, 2002). The particular regulation strategies used (i.e. reappraisal or suppression) have significant influence on individuals' emotional experiences (Gross, 1998; 2014). However, the majority of prior research has not examined these with prisoners, focusing instead on child and non-clinical samples. Consequently, little is known about individual differences in emotion regulation strategies among aggressors from more extreme populations. Detailed examinations of the association between personality, emotion and aggression motivations and inhibitions have also not been directly considered, despite their significant conceptual overlap.

Building on the concept of regulation, several researchers acknowledge that not all urges towards aggression are enacted. Many multifaceted theories of aggression include the concept of inhibition in their frameworks (Finkel, 2007; Magargee, 2011). Finkel (2007) proposed such inhibitors should fall into one of four components, namely evolutionary and cultural, personal, dyadic, and situational. Inhibitors generally and the validity of Finkel's (2007) components have yet to be empirically explored in relation to aggression especially in prisoners.

The literature focuses on proactive and reactive in terms of aggression motivation (Raine *et al.*, 2006). Study one (see Chapter 7) extended these motivations with a four-factor component model namely, *protection*, *social recognition*, *positive outcome* and *pleasure*, whereas study two (see Chapter 8) indicated a three-factor model of aggression motivation. Several motivations such as *protection*, showed consistency across studies, whilst others such as *social recognition* and *positive outcomes* merged. The underlying component structure of aggression motivation was, therefore, unclear and the need to utilise confirmatory rather than exploratory analytical methods is highlighted. Yet there have been two studies so far and both suggest aggression motivation exceeds the two commonly talked about distinction of reactive versus proactive. Further examination of aggression motivations and inhibitors, and their

underlying characteristics inclusive of interfering personality disorder traits and emotion, is significant and would make a useful contribution to the development of an integrated model of aggression for prisoners.

9.3 Participants

To address a limitation of previous studies participants (adult men) were sampled from two closed prison establishments in the UK. One prison was a medium secure setting (Category C), and the other a higher security prison that included prisoners on remand (Category B). A total of 579 questionnaires were distributed and a total of 253 were returned producing a response rate of 43.7%. Of the 234 participants included, 64 were aged under 29 (27.4%), 85 between 30 and 41 (36.3%), 55 between 42 and 53 (23.5%), and 30 were over 54 years of age (12.8%). Fifty two per cent of participants had under five previous convictions ($n = 121$), seventeen per cent had between five and ten previous convictions ($n = 40$), and thirty one per cent had over ten previous convictions ($n = 73$). One hundred and twenty nine participants had served or were sentenced for violent offences (55.1%), and the remaining one hundred and five had no convictions for violence (45.9%).

9.4 Ethical considerations

Presentation of the study proposal was made both to the Ethics Committee at the University of Central Lancashire and separately to the research coordinators at the prisons. The HM Prison Service application required detailed information about the study, participant recruitment and consent, implications for local resources, and any associated risks to the researcher or others by their participation. Information on the benefits of the study in relation to the organisation and wider field of literature were also required. After some minor revisions to the information sheets given to participants prior and debrief sheets following engagement in the study, ethical approval was given. A copy of all documentation and questionnaires used in this study is in Appendix 4.

9.5 Measures

Each participant completed the following measures;

Aggression motivation questionnaire (AMQ; Ireland, 2007)

This measure was described previously in Chapter 7 and was used unchanged from studies one and two.

Aggression inhibition questionnaire (AIQ: Ohlsson & Ireland, 2012)

Inhibitions concern the factors that influence decision making in favour of non-aggression (Finkel, 2007; Megargee, 2011). Based on the available literature, this 43-item questionnaire was developed for this study and examined factors that inhibited aggression. Participants were asked to consider the last time they chose not to aggress and rated the relevance of each statement on a likert scale ranging from 1 = not at all through to 4 = definitely. Statements included ‘I did not want to be aggressive’, ‘I would have lost respect from others’, ‘I take no pleasure in harming others’, and ‘I was fearful or afraid in the situation’. A copy of this measure is included in Appendix 4 (p. 323-325).

International Personality Disorder Examination: Screening Questionnaire (IPDE-SQ: Loranger, 1999)

The IPDE screening questionnaire is a 77-item self-report screening measure used to identify interfering personality traits associated with a number of personality disorders. It considers the traits associated with ten personality disorders outlined within the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV: APA, 2000). Participants responded with either ‘True’ or ‘False’ to items such as, “People think I’m cold and detached”, “I use people to get what I want”, “I like to dress so I stand out in the crowd”, and “I don’t show much emotion.” The IPDE-SQ has reasonably good reliability ranging from $\alpha = .61$ to $\alpha = .92$ for all personality disorder traits across studies (Barr & Morrison, 2015).

Emotion regulation questionnaire (ERQ: Gross & John, 2003)

This measure is designed and was used to assess individual differences in the habitual use of two emotion regulation strategies; cognitive reappraisal and expressive suppression. It is a 10-item questionnaire that asks participants to rate how they control their emotions. Items include; “I keep my emotions to myself”, “I control my emotions by not expressing them”, and “when I want to have less negative emotion, I change the way I’m thinking about the situation.” Results from previous reliability testing indicated good internal consistencies for the two subscales with cognitive reappraisal achieving a Cronbach’s α of .81 and expressive suppression an α of .73 (Enebrink, Bjornsdotter, & Ghaderi, 2013).

Balanced Inventory of Desirable Responding (BIDR-6: Paulhus, 1991)

This is a measure of one’s tendency to give socially desirable responses. Participants were asked to rate the degree that they agreed or not with 40 items on a likert scale ranging from

1 = not true to 7 = very true. Examples of items were 'I always know why I like things', 'I never regret my decisions', and 'I sometimes tell lies if I have to'. One of the caveats of using self-report measures is that the responses given may be distorted by social desirability (Suris *et al.*, 2004). This measure was introduced to reduce the impact of such a bias. Outcomes from previous reliability and validity testing of this measure were reported in Chapter 7.

9.6 Procedure

The procedure for participant selection and consent was similar to that adopted in studies one and two (see Chapters 7 and 8). Participants completed all questionnaires in their cell over the lunch hour to aid privacy and protection of responses. Questionnaires were distributed as they collected their meals, and collected either after lunchtime unlocked, or via prisoners' posting them under their door during the lunch hour for collection by the researcher. An envelope was provided for all completed questionnaires to be returned in. Seven participants were unable to read and requested that the questions were administered orally. The participants then marked their responses discretely as required.

9.7 Results

Data screening is presented first and then the results from analyses undertaken to address each prediction. A total of 253 measures were initially returned and screened to identify any outliers and unusual data patterns. Missing values were addressed in the first instance with cases being treated as purely missing when 25% or more of the items were missing. This resulted in the removal of fourteen cases. Missing values analysis followed on the remaining 234 participants and revealed no systematic pattern in the missing values with all means, correlation and covariances found were missing at random (Little's Chi-square [1, n=233] = 13.67, $p > .05$).

Missing value analysis revealed twenty-four cases (10.3%) with at least one missing value. This corresponded to 6.9 per cent of the total values collected. To generate values for this missing data, Multiple Imputation (Allison, 2001; Graham, Cumsille, & Elek-Fisk, 2003) was utilised. The procedure as set out in studies 1 and 2 was utilised. Results and descriptive statistics are presented in Table 9.1.

Table 9.1 Descriptive statistics for original and imputed data for all variables

Variable	Original data		Imputed data	
	Mean	SD	Mean	SD
Positive outcome and status (AMQ 1)	41.8	18.3	42.9	18.9
Protection (AMQ 2)	26.1	8.3	24.6	8.6
Pleasure (AMQ 3)	22.7	9.6	23.4	10.0
Empathy and consequences evaluation (AIQ 1)	41.2	17.3	39.3	16.2
Lack of success and need to protect self (AIQ 2)	22.7	6.5	23.5	7.0
Traits and beliefs unsupportive of aggression (AIQ 3)	11.9	5.2	12.7	4.0
Emotional control (AIQ 4)	12.1	3.2	11.9	3.5
Paranoid (IPDE-SQ)	2.6	2.1	2.8	1.7
Schizoid (IPDE-SQ)	2.3	1.3	2.1	1.5
Schizotypal (IPDE-SQ)	2.1	1.5	2.4	1.9
Histrionic (IPDE-SQ)	2.2	1.3	2.3	1.7
Antisocial (IPDE-SQ)	2.6	2.0	2.5	1.8
Narcissistic (IPDE-SQ)	2.4	2.1	2.3	1.9
Borderline (IPDE-SQ)	3.6	2.3	3.2	2.3
Compulsive (IPDE-SQ)	3.2	1.6	3.0	1.6
Dependent (IPDE-SQ)	2.2	1.5	1.9	1.7
Avoidant (IPDE-SQ)	3.5	2.2	3.4	2.2
Reappraisal (ECQ)	26.2	7.6	27.7	7.8

Suppression (ECQ)	17.3	6.2	16.7	6.3
BIDR total	12.1	7.9	12.7	7.5

Multivariate outlier checks were undertaken using Mahalanobis distance. Cases with values of 58.03 or higher were excluded, which resulted in the removal of five cases. Histograms and Q-Q plots were reviewed for all variables with no significant clustering of values evident. No skewness and kurtosis values went above +/- 1.0 indicative of some normality (Tabachnick & Fidell, 2007). The data screening process resulted in a final total of 234 cases, which were then subjected to further analysis (inclusion rate from distribution of 40.4%).

Internal reliability estimates for all measures were undertaken using Cronbach's alpha¹². With regard to the IPDE-SQ the following reliability outcomes were achieved: Paranoid $\alpha=.85$ (7 items), Schizoid $\alpha=.70$ (7 items), Schizotypal $\alpha=.79$ (9 items), Histrionic $\alpha=.63$ (8 items), Antisocial $\alpha=.73$ (7 items), Narcissistic $\alpha=.80$ (9 items), Borderline $\alpha=.68$ (9 items), Compulsive $\alpha=.83$ (8 items), Dependent $\alpha=.71$ (8 items), and Avoidant $\alpha=.79$ (8 items). For the ERQ, both the cognitive reappraisal ($\alpha=.82$; 6 items) and expressive suppression ($\alpha=.82$; 6 items) subscales had good internal reliability. Reliability estimates for the BIDR were acceptable with the impression management subscale achieving an α of .78 (20 items), the self-deceptive enhancement subscale an α of .77 (20 items), and the total BIDR score an α of .72 (40 items).

Reliability estimates for the AMQ were as follows: positive social outcomes $\alpha=.85$ (20 items), protection $\alpha=.76$ (9 items) and pleasure $\alpha=.81$ (8 items). All reliability values for the identified components of aggression inhibition were also acceptable as follows: empathy and consequence evaluation $\alpha=.89$ (20 items), lack of success and need to protect self $\alpha=.78$ (10 items), traits and beliefs unsupportive of aggression $\alpha=.86$ (4 items), and emotional control $\alpha=.70$ (5 items).

¹² George and Mallery (2003) provide the following guidelines for Cronbach alpha interpretations: $>.9$ = excellent, $>.8$ = good, $>.7$ = acceptable, $>.6$ = questionable, $>.5$ = poor, $<.5$ unacceptable.

9.8 Exploring personality and emotion regulatory differences between prisoner types (i.e. violent and non-violent)

Predictions:

4a: Emotion regulation strategies will differ between violent and non-violent prisoners (Gross, 2014; Ross, 2008, Robertson et al., 2014).

5a: Maladaptive personality traits will differ between violent and non-violent prisoners (Gilbert & Daffern, 2011; Hosie et al. 2014; Logan & Johnstone, 2010).

Descriptive statistics for the proposed developmental factors for each type of offender (i.e. violent or non-violent) are presented in Table 9.2.

Table 9.2. Descriptive statistics for maladaptive personality traits and emotion regulatory strategies of violent and non-violent prisoners

	Violent (n=129)		Non-violent (n=105)		Total sample (n=234)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
IPDE-SQ						
Paranoid	3.0	1.7	2.7	1.6	2.8	1.7
Schizoid	2.2	1.5	1.8	1.4	2.1	1.5
Schizotypal	2.4	1.9	2.4	1.8	2.4	1.9
Histrionic	2.4	1.7	2.1	1.7	2.3	1.7
Antisocial	3.0*	1.9	2.0	1.6	2.5	1.8
Narcissistic	2.6*	2.0	2.0	1.6	2.3	1.9
Borderline	3.4	2.2	3.0	2.3	3.2	2.3
Compulsive	2.8	1.5	3.6*	1.6	3.0	1.6
Dependent	1.7	1.8	2.0	1.7	1.9	1.7
Avoidant	3.2	2.2	3.7	2.1	3.4	2.2
ERQ						
Cognitive reappraisal	28.2	8.2	27.1	7.4	27.7	7.8
Expressive suppression	16.8	6.3	16.5	6.4	16.7	6.3

* p<.01

A multivariate analysis of variance was performed to investigate interfering personality disorder trait differences between types of prisoners. Power analysis using G*Power (Faul *et al.*, 2007) indicated that a sample of 167 was required to give a $\beta = .80$, and which was exceeded by the current sample of 234. Preliminary assumption testing revealed no serious violations of the assumptions of normality, linearity, homogeneity of variance-covariance matrices, and multicollinearity. There was a significant difference between prisoners on the combined personality variables, $F(10, 223) = 3.80$, $p < .01$; Wilks' Lambda = .85, partial $n^2 = .15$. When results for each dependent variable were considered separately the narcissistic, $F(1, 232) = 4.3$, $p < .001$, partial $n^2 = .02$, antisocial, $F(1, 232) = 9.8$, $p < .001$, partial $n^2 = .04$, and compulsive, $F(1, 232) = 7.2$, $p < .001$, partial $n^2 = .03$, interfering personality traits were significant using a Bonferroni adjusted alpha of .001. An inspection of mean scores indicated that violent prisoners reported higher scores on the narcissistic and antisocial traits. Non-violent prisoners had higher compulsive personality disorder traits.

A multivariate analysis of variance was performed to investigate differences in emotion regulation strategies between types of prisoners. Acceptable power was reached for this test with $\beta = .98$ (Faul *et al.*, 2007). No significant difference were found at either the multivariate, $F(2, 231) = .53$ ns, or individual strategy level (cognitive reappraisal, $F(1, 232) = .97$ ns, and expressive suppression, $F(1, 232) = .12$ ns).

9.9 Examination of personality and emotion regulatory differences between aggressors

Predictions

3c: Use of cognitive reappraisal will be greater amongst proactive aggressors (Gross, 1998; Hubbard et al., 2002).

3d: Use of expressive suppression will be greater amongst reactive aggressors (Gross, 1998; Vitaro et al., 2002).

3f: Borderline and histrionic personality disorder traits will be positively related to reactive aggression (Esbec & Echeburua, 2010).

3g: Narcissistic and antisocial personality traits will be positively associated with proactive and mixed motive aggressors (Baumeister, Bushman, & Campbell, 2000; Esbec & Echeburua, 2010).

As part of the AMQ assessment, prisoners reported whether their acts of aggression reflected either reactive, proactive or mixed motive (proactive [$n = 50$], reactive [$n = 81$] and mixed

motive [n = 103]), which was then used as a grouping variable for further analysis. Descriptive statistics are presented in table 9.3.

Table 9.3: Descriptive results for emotion regulation strategies and maladaptive personality traits between types of aggressors

	Proactive (N = 50)		Reactive (N =81)		Mixed motive (N = 103)	
ERQ strategy	M	SD	M	SD	M	SD
Cognitive reappraisal	28.0	7.4	27.2	8.3	27.9	7.8
Expressive suppression	17.6	7.1	16.4	5.4	16.7	6.3
IPDE-SQ traits	M	SD	M	SD	M	SD
Paranoid	2.6	1.5	2.8	1.8	2.9	1.7
Schizoid	1.5	1.5	1.2	1.5	2.3*	1.4
Schizotypal	2.4	1.9	2.4	1.9	2.5	1.9
Histrionic	2.4	1.8	2.0	1.6	2.4	1.8
Antisocial	2.1	1.6	2.3	1.9	2.9*	1.9
Narcissistic	2.2	2.0	2.2	1.7	2.5	1.9
Borderline	2.8	2.2	3.3	2.3	3.4	2.2
Compulsive	2.8	1.5	3.1	1.4	3.1	1.7
Dependent	2.2	2.0	1.8	1.4	1.7	1.8
Avoidant	3.0	1.9	3.6	2.3	3.5	2.2

$p < .01^*$

Multivariate analysis of variance¹³ was performed to investigate individual differences in the emotion regulation strategies (i.e. cognitive reappraisal and expressive suppression) between aggression groups (i.e. proactive, reactive and mixed). With the current sample of 234, acceptable power was reached for this test with $\beta = .97$ (Faul *et al.*, 2007). No statistically significant differences were found between ‘reactive’, ‘proactive’ or ‘mixed motive’ aggressors and their emotion regulatory strategies, $F(2, 221) = .410ns$.

¹³ Preliminary assumption testing revealed no serious violations of the assumptions of normality, linearity, homogeneity of variance-covariance matrices, and multicollinearity.

A between groups multivariate analysis of variance was also performed to investigate differences in personality disorder traits between reactive, proactive and mixed motive aggressors. The ten personality disorder traits assessed by the IPDE-SQ were the dependent variables, and the three types of aggressor the independent variable. Power analysis (Faul *et al.*, 2007) indicated that a sample of 122 was required to achieve a $\beta = .80$, which was exceeded. Means and standard deviations from this analysis are also presented in Table 9.3.

There was a statistically significant difference between types of aggressors on the combined dependent variables, $F(20; 424) = 1.7, p < .05$; Wilks' Lambda = .86, partial $n^2 = .08$. When the results for the dependent variables were considered separately, only two reached statistical significance, using a Bonferroni adjusted alpha level of .005, which were schizoid, $F(2; 231) = 4.1, p < .001$, partial $n^2 = .04$, and antisocial, $F(2; 231) = 3.5, p < .001$, partial $n^2 = .03$, personality disorder traits. Mixed motive aggressors reported a higher score on these interfering personality traits.

9.10 Exploring the components of aggression inhibition and self-control

Predictions

3b: Finkel's (2007) four-factor model for aggression inhibition/self-control (evolutionary and cultural, personal, dyadic and situational) will be replicated.

To identify the components of aggression inhibition for further analysis exploratory factor analysis was undertaken on the 43 items of the AIQ with direct oblimin rotation as recommended when items could correlate (Tabachnick & Fidell, 2007). Suitability of the data for factor analysis was assessed, and the Kaiser-Meyer-Olkin value of .78 exceeding recommended values (Kaiser, 1974). Bartlett's Test of Sphericity (Bartlett, 1954) also reached statistical significance supporting the factorability of the correlation matrix.

Parallel Analysis (Horn, 1965) was used to determine the number of factors to be accepted. Variables were limited to those with eigenvalues > 1.0 , and coefficients below .4 were eliminated (Tabachnick & Fidell, 2007). Items that loaded on more than one factor were considered only for the factor with which the relationship was strongest. Items that loaded on more than one factor, with the difference between relationships being .10 or less were excluded, on the basis of a lack of discrimination across factors. Four factors with items loadings above .40 were extracted. Table 9.4. shows the factor loadings after rotation.

Table 9.4: Factor analysis of the Aggression Inhibition Questionnaire (AIQ)

Factor 1: Empathy and consequence evaluation (20 items) <i>Eigenvalue: 8.87; Variance explained: 21%</i>	Factor loading	AIQ item
I take no pleasure in harming others	.72	17
There was no benefit to me in using aggression	.64	18
I do not like seeing other people suffer	.62	10
I was in a positive state of mind	.62	35
The other person didn't deserve me being aggressive towards them	.61	32
I have the skills to deal with the situation/problem without aggression	.61	33
I did not want to be aggressive	.61	4
I was able to deal with the situation/problem without aggression	.60	9
I don't like confrontation	.60	25
I would rather avoid an argument	.58	38
I challenged my aggressive thoughts effectively	.58	39
I could see the other person's point of view	.56	34
I was able to think about the negative consequences of my actions	.56	8
I'm getting older and no longer have the urges to be aggressive	.48	41
I thought of a non-aggressive way of dealing with it	.48	12
I cared about the other person involved	.46	21
It is what I would usually do	.44	6
I wanted to show others I have changed my ways	.43	42
I have a lot to lose if I act in that way	.42	19
I would have been punished if I was aggressive	.41	40
Factor 2: Lack of success and need to protect self (10 items) <i>Eigenvalue: 4.79; Variance explained: 11%</i>		
I was physically unwell/unfit	.65	43
The other person was bigger and stronger than me	.59	24
I knew that I would have lost and come out worse	.54	28
I was fearful/afraid in the situation	.54	23
Where I was (e.g. in prison) stopped me	.53	11
I wanted to protect myself from harm	.49	26
I was not provoked	.48	20
I was being closely observed by people in authority	.46	37

I would have lost respect from others	.45	13
I promised someone I wouldn't be aggressive again	.41	22

Factor 3: Traits and beliefs unsupportive of aggression (4 items)

Eigenvalue: 2.70; Variance explained: 6%

My personality makes it less likely that I will be aggressive	.62	16
It [aggression] is against my personal beliefs	.58	27
I believe aggression solves nothing	.55	15
It [aggression] is not in my nature	.47	29

Factor 4: Emotional control (5 items)

Eigenvalue: 2.15; Variance explained: 5%

I controlled my aggressive emotions	.54	2
A strong emotion (e.g. guilt or shame) stopped me	.50	5
I was not feeling particularly angry	.51	3
I just wasn't in the mood to be aggressive	.47	31
It would leave me feeling isolated or alone	.46	1

Factor 1 (eigenvalues = 8.87) accounted for 21% of the variance and comprised 21 items. In general, items reflected that viewing non-aggression as *empathy and consequence evaluation* was an inhibitory factor. These 20 items showed internal consistency using Cronbach's alpha ($\alpha = .89$).

Factor 2 (eigenvalues = 4.79) accounted for 11% of the variance and comprised 10 items. Items tended to refer to a *lack of success and need to protect self*. These 10 items were internally consistent using ($\alpha = .78$).

Factor 3 (eigenvalues = 2.70) accounted for 6% of the variance and comprised 4 items, which pertained to *traits and beliefs unsupportive of aggression*, with the items internally consistent ($\alpha = .86$).

Factor 4 (eigenvalues = 2.15) accounted for 5% of the variance and comprised 5 items, which pertained largely to *emotional control* as an inhibitor for aggression, with items being internally consistent ($\alpha = .70$).

9.11 Exploring emotion regulation and personality predictors of aggression inhibition

Predictions

4d: Different emotion regulatory strategies will be associated with varying inhibitors for aggression (Gross, 2014).

5d: Different maladaptive personality traits will be associated with differing aggression inhibitors (Daffern & Howells, 2009; Fergusson et al., 2008; Megargee, 2011).

A series of hierarchical multiple regressions were conducted to examine whether emotion regulatory strategies (i.e. cognitive reappraisal and expressive suppression) were predictors of aggression inhibitors as measured by the AIQ. Social desirable responding, as assessed by the BIDR, was controlled through entering it first into the regression models followed by the independent variables. To perform these regressions a sample of 226 was required to give a $\beta = .80$ (Faul et al., 2007), which was exceeded indicating good power. Variable correlations are presented in Table 9.5.

Table 9.5. Correlational analysis results for aggression inhibitors and emotion regulation strategies.

	ECE	Success	TriBel	Cont	Cogre	Emsup	BIDR
ECE	–	.03	.10	.09	-.01	-.01	.07
Success	.03	–	.13*	.20**	.17*	.17*	-.18**
TriBel	.10	.13*	–	.23**	-.10	-.10	.40**
Cont	.09	.20**	.23**	–	.02	.02	.06
Cogree	.07	.09	.20**	.27**	–	.04	.16*
Emsup	-.01	.17*	-.10	.02	.04	–	-.69
BIDR	.07	-.18**	.40**	.06	.16*	-.69	–

Key: ECE: AIQ empathy and choice evaluation; Success: AIQ; lack of success and need to protect self; TriBel: AIQ traits and beliefs unsupportive of aggression; Cont: AIQ emotional control; Cogre: ERQ cognitive reappraisal; Emsup: ERQ emotional suppression; BIDR; social desirability.

** $p \leq .01$ all other significant correlations * $p \leq .05$

With regard to the *empathy and consequence evaluation* inhibitor, the results of this regression indicated that social desirability explained 15.1% of the total variance, $F(3, 230) = 14.1, p < .01$, and made the only significant contribution (beta = $-.37, p < .01$). The *lack of*

success and need to protect self inhibitor was subjected to regression analysis to examine the predictive ability of emotion regulation strategies. Social desirability was entered first and it explained 3.3% of the variance with use of this inhibitor. The addition of emotion regulation strategies increased this to 27.2%, $F(3, 230) = 5.6, p < .01$. An additional 23.9% of the variance in the use of this aggression inhibitor was associated with emotion regulation strategies, R^2 change = .77, F change (10,222) = 21.91, $p < .01$. In the final model, only two variables were statistically significant, with the *expressive suppression* strategy recording a higher beta value (beta = .25, $p < .01$) than social desirability (beta = -.19, $p < .05$).

With regard to *traits and beliefs unsupportive of aggression*, when entered first, social desirability explained 6.3% of its variance in the predictive model, with the addition of cognitive reappraisal and expressive suppression increasing this by 12.7% to a total of 19% of the total variance, $F(3, 230) = 17.2, p < .01$. This increase in explained variance was significant, R^2 change = .17, F change (10,222) = 44.4, $p < .01$. In the final model, cognitive reappraisal had the higher beta value (beta = .38, $p < .01$) followed by social desirability (beta = .14, $p < .05$). This indicated use of the emotion regulation strategy of cognitive reappraisal predicted use of this component of aggression inhibition.

Regression analysis was also used to examine the ability of cognitive reappraisal and expressive suppression to predict aggression inhibited by *emotional control*. Social desirability was entered into the regression model first and was non-significant, $F(3, 230) = .81$ ns. Entry of the emotion regulation strategies resulted in a significant increase to 16% of the total variance (R^2 change = .07, F change (10,222) = 8.21, $p < .01$), and a significant final model, $F(3, 230) = 5.76, p < .01$. Cognitive reappraisal recording a higher beta value (beta = .27, $p < .01$) than emotional suppression (beta = .12, $p > .05$) indicating use of both predicted the inhibitor emotional control, and yet reappraisal made the greater contribution.

A further series of hierarchical multiple regressions were conducted to examine the ability of interfering personality traits to predict aggression inhibitors. The influence of social desirable responding was again controlled for through sequential entering into the regression models. To perform these regressions a sample of 222 was required to give a $\beta = .80$ (Faul *et al.*, 2007). Correlations between all these variables are presented in Table 9.6.

With regard to the *empathy and choice evaluation* inhibitor, neither social desirability or interfering personality traits were found to be significant predictors, $F(11, 222) = 1.2, p = ns$. A significant result was indicated from a regression analysis that examined the personality predictors of aggression inhibited by *lack of success and need to protect self*. Social desirability was entered first and it explained 3.3% of the variance with the addition of personality disorder traits increasing this to 14%, $F(11, 222) = 3.2, p < .01$. A significant change in explained variance, R^2 change = .11, F change (10,222) = 7.66, $p < .01$. It was found that avoidant (beta = .25, $p < .01$) and compulsive (beta = -.13, $p < .05$) interfering personality traits predicted use of this aggression inhibitor.

The personality trait predictors of aggression inhibited by *traits and belief unsupportive of aggression* were examined by regression analysis. Results indicated that social desirability initially explained 1.7% of variance, with interfering personality traits increasing this to a total of 29.7%, $F(11, 222) = 8.1, p < .01$. Two significant predictors explained 28% of the variance, R^2 change = .17, F change (10,222) = 44.5, $p < .01$. It was found that avoidant had the higher beta value (beta = .20, $p < .01$) followed by schizoid (beta = -.18, $p < .01$) interfering personality traits.

A further hierarchical multiple regression examined the interfering personality trait predictors of the *emotional control* aggression inhibitor, whilst controlling for the influence of social desirability. No significant predictors were found from this regression analysis, $F(11, 222) = .98ns$.

Table 9.6. Correlational analysis results for aggression inhibitors, maladaptive personality traits and social desirability

	ECE	Success	TriBel	Cont	Para	Schod	Schizt	Hist	Anti	Narc	Bord	Com	Dep	Avoid	BIDR
ECE	_	.03	.10	.09	-.16*	-.03	-.10	-.10	-.19*	-.10	-.13	.04	-.05	-.01	.07
Success	.03	_	.13*	.10	.29**	.17*	.24*	.11	.10	.11	.27**	.06	.17*	.32**	-.18**
TriBel	.10	.13*	_	.23**	-.13**	-.20**	-.14*	-.21**	-.38**	-.21**	-.20**	.03	-.02	.06	.41**
Cont	.09	.20**	.23**	_	.05	-.11	-.04	.02	.02	-.03	.00	.02	.09	.02	.06
Para	-.16*	.29**	-.13**	.05	_	.38**	.66*	.46**	.54**	.41**	.69**	.35**	.47**	.62**	-.30**
Schod	-.03	.17*	-.20**	-.11	.38**	_	.53**	.25**	.32**	.35**	.47**	.31**	.27**	.43**	-.20**
Schizt	-.10	.24**	-.14*	-.04	.66**	.53**	_	.51**	.45**	.44**	.69**	.46**	.48**	.57**	-.30
Hist	-.10	.11	-.21**	.02	.46**	.25**	.51**	_	.47**	.53**	.51**	.21**	.41**	.25**	-.21**
Anti	-.19*	.10	-.38**	.02	.54**	.32**	.45**	.47**	_	.50**	.56**	.16*	.30**	.24**	-.42**
Narc	-.10	.11	-.21**	-.03	.41**	.35**	.44**	.53**	.50**	_	.44**	.23**	.26**	.24**	-.27**
Bord	-.13	.27**	-.20**	.00	.69**	.47**	.69*	.51**	.56**	.44**	_	.34**	.51**	.59**	-.33**
Com	.04	.06	.03	.02	.35**	.31**	.46**	.21**	.16*	.23**	.34**	_	.30**	.42**	-.14*
Dep	-.05	.17*	-.02	.09	.47**	.27**	.48**	.41**	.30**	.26**	.51**	.30**	_	.41**	-.25**
Avoid	-.01	.32**	.06	.02	.62**	.43**	.57**	.25**	.24**	.24**	.59**	.42**	.41**	_	-.19**
BIDR	.07	-.18**	.41**	.06	-.30**	-.20**	-.30	-.21**	-.42**	-.27**	-.33**	-.14*	-.25**	-.19**	_

Key: ECE: AIQ empathy and choice evaluation; Success: AIQ; lack of success and need to protect self; TriBel: AIQ traits and beliefs unsupportive of aggression; Cont: AIQ emotional control; Para: IPDE-SQ paranoid; Schod: IPDE-SQ schizoid; Schizt: IPDE-SQ schizotypal; Hist: IPDE-SQ histrionic; Anti: IPDE-SQ Antisocial; Narc: IPDE-SQ narcissistic; Bord: IPDE-SQ borderline; Com: IPDE-SQ compulsive; Avoid: IPDE-SQ avoidant; Dep: IPDE-SQ dependent; BIDR: social desirability.

** $p \leq .01$ all other significant correlations * $p \leq .05$

9.12 Examining the components of aggression motivation

Prediction

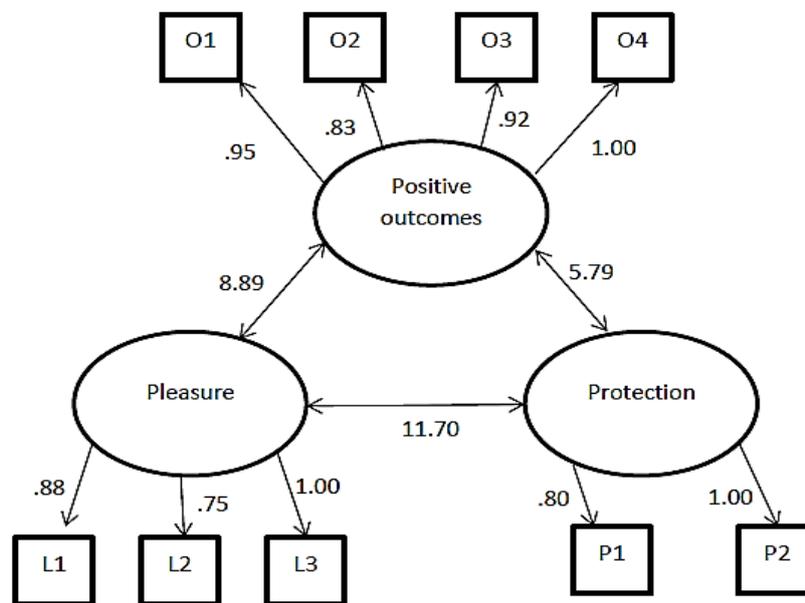
3a: The four (study 1: protection, positive outcomes, social recognition and emotional management, and pleasure) or three factor (study 2: pleasure and emotional management, protection, positive social outcomes) solution for aggression motivation would be confirmed.

The characteristics and factors (such as personality, affect, cognition and developmental experiences) associated with aggression motivation and inhibition remain the core focus of this thesis. Yet, there is need to establish a reliable factor structure to examine the influence of personality and emotion regulation on aggression motivation in this study. This thesis has already confirmed that motivation extends beyond the dichotomy of reactive versus proactive. Confirmatory factor analysis (CFA) was therefore used to examine how well the data fitted the four-factor solution indicated by study 1 (see Chapter 7) or the three-factor solution suggested in study 2 (see Chapter 8).

Item parcelling was employed rather than individual items to reduce error rates and distortion from individual items (Anderson, Benjamin, Wood & Bonacci, 2006). Parcels were calculated using factor totals and correlation magnitude (see Appendix 5), thus ensuring parcels were made up of conceptually similar items (Kishton & Widaman, 1994). The parcelling procedure accommodates violations of normality and possibility of low communalities in factor analysis (Anderson *et al.*, 2006; Kishton & Widaman, 1994; Tabachnick & Fidell, 2007).

A series of CFAs were undertaken on the data using the three and four AMQ factor solutions. Improvements were attempted to model fit through examining Modification Indices (MIs) and Item Covariances (ICs). The three-factor solution (*positive social outcomes, pleasure and protection*) provided the best model fit to the data with most indices within acceptable ranges; GFI = 0.91; CFI = 0.96; and RMSEA = .90, n=234. This model is presented in Figure 9.1, and was used for the remaining analyses.

Figure 9.1: Confirmatory factor analysis output showing model fit for the three-factor model of aggression motivation; $\chi^2(75)=74.76$, $p > .05$; GFI=.91; CFI=.96; RMSEA=.90; $n = 234$.



9.13 Exploring emotion regulation and personality predictors of aggression motivation

Predictions

4d: Different emotion regulatory strategies will be associated with varying motivations for aggression (Gross, 2014).

5d: Different maladaptive personality traits will be associated with differing aggression motivations (Daffern & Howells, 2009; Fergusson et al., 2008; Megargee, 2011).

A series of hierarchical multiple regressions were conducted to assess the ability of emotion regulation strategies to predict prisoners' aggression motivations as measured by the AMQ. Acceptable power was achieved for this test with $\beta = .96$ as assessed via G*Power (Faul et al., 2007). Controlling for the influence of socially desirable responding was also undertaken through sequential entry into the regression model. Preliminary analyses of the assumptions of normality, linearity, multicollinearity and homoscedasticity were conducted with no violations indicated. Variable correlations are presented in Table 9.7.

Table 9.7. Correlational analysis results for aggression motivations and emotion regulation strategies.

	PosOut	Pleas	Prot	Cogre	Emsup	BIDR
PosOut	—	.77**	.82**	-.15*	.10	-.39
Pleas	.77**	—	.64**	.03	.03	-.30**
Prot	.82**	.64**	—	.19*	.19*	-.49**
Cogree	-.15*	.03	.19*	—	.04	.16*
Emsup	.10	.03	.19*	.04	—	-.69
BIDR	-.39	-.30**	-.49**	.16*	-.69	—

Key: Pleas: AMQ positive social outcome; Pleas: AMQ pleasure; Prot: AMQ protection; Cogre: ERQ cognitive reappraisal; Emsup: ERQ emotional suppression; BIDR; social desirability.

** $p \leq .01$ all other significant correlations * $p \leq .05$

The first regression analysis examined whether the two ERQ strategies (*cognitive reappraisal* and *expressive suppression*) were predictors of aggression motivated by *positive social outcomes*. Social desirable responding was entered first and it explained 15.1% of the variance in aggression motivated by *positive social outcomes*. After entry of cognitive reappraisal and expressive suppression, the total variance explained by the model was 16.3%, $F(3, 230) = 14.3$, $p < .01$. In the final model social desirability was the only statistically significant predictor with a beta value of $-.39$, $p < .01$, suggesting emotion regulation was not significantly associated with this motivation.

ERQ strategies were also considered in terms of their ability to predict aggression motivated by *pleasure*. Results from this hierarchical regression indicated only one predictor was significant, $F(3, 230) = 7.57$, $p < .01$. Social desirability explained 9.4% of the variance and was the only significant contributor (beta = $-.29$, $p < .01$) to this model suggesting these emotion regulation strategies were not associated with the *pleasure* motivation.

In terms of the *protection* aggression motive, regression analysis considered whether emotion regulation strategies were predictors. Social desirability was entered first into the model, and it explained 9.4% of the variance. After entry of cognitive reappraisal and expressive suppression, the total variance explained by the model increased to 30.2%, $F(3,$

230) = 27.0, $p < .01$. Emotion regulation strategies explained an additional 20.8% of the variance in aggression motivated by protection, R^2 change = .09, F change (10,222) = 21.9, $p < .01$. In the final model, only two variables were statistically significant, with the *expressive suppression* emotion regulation strategy recording a higher beta value (beta = .46, $p < .01$) than social desirability (beta = .15, $p < .05$). This indicated that expressive suppression was a predictor of aggression motivated by protection.

Sequential regression analyses were used to assess whether interfering personality traits were predictors of AMQ motivations, after controlling for the influence of social desirability. Acceptable power was achieved for this test with $\beta = .98$ as assessed via G*Power (Faul *et al.*, 2007). Correlations between all variables are presented in Table 9.8.

Table 9.8. Correlational analysis results for aggression motivations, maladaptive personality traits and social desirability

	PosOut	Pleas	Prot	Para	Schod	Schizt	Hist	Anti	Narc	Bord	Com	Dep	Avoid	BIDR
PosOut	—	.77**	.82**	.37**	.33**	.31**	.34**	.48**	.42**	.39**	.19*	.16*	.25**	-.39**
Pleas	.77**	—	.64**	.39**	.14*	.26**	.29**	.52**	.31**	.39**	.13	.07	.18**	-.30**
Prot	.82**	.64**	—	.41**	.33**	.35**	.35**	.51**	.38**	.47**	.16*	.20*	.24**	-.49**
Para	.37**	.39**	.41**	—	.38**	.66**	.47**	.54**	.41**	.73**	.35**	.47**	.62**	-.30**
Schod	.32**	.14*	.33**	.38**	—	.53**	.25**	.32**	.35**	.47**	.31**	.27**	.43**	-.19**
Schizt	.31**	.26**	.35**	.65**	.53**	—	.51**	.45**	.44**	.69**	.46**	.48**	.57**	-.30**
Hist	.34**	.29**	.35**	.47**	.25**	.51**	—	.47**	.53**	.51	.21**	.41**	.25**	-.21**
Anti	.48**	.52**	.51**	.54**	.32**	.45**	.47**	—	.50**	.57**	.16*	.30**	.24**	-.42**
Narc	.42**	.31**	.38**	.41**	.35**	.44**	.53**	.50**	—	.44**	.23**	.26**	.24**	-.27**
Bord	.39**	.39**	.47**	.73**	.47**	.69**	.51	.57**	.44**	—	.34**	.51**	.59**	-.33**
Com	.19*	.13	.16*	.35**	.31**	.46**	.21**	.16*	.23**	.34**	—	.30**	.42**	-.14*
Dep	.16*	.07	.20*	.47**	.27**	.48**	.41**	.30**	.26**	.51**	.30**	—	.41**	-.25**
Avoid	.25**	.18**	.24**	.62**	.43*	.57**	.25**	.24**	.24**	.59**	.42**	.41**	—	-.19**
BIDR	-.39**	-.30**	-.49**	-.30**	-.19**	-.30**	-.21**	-.42**	-.27**	-.33**	-.14*	-.25**	-.19**	—

Key: PosOut: AMQ positive social outcome; Pleas: AMQ pleasure; Prot: AMQ protection; Para: IPDE paranoid; Schod: IPDE schizoid; Schizt: IPDE schizotypal; Hist: IPDE histrionic; Anti: IPDE Antisocial; Narc: IPDE narcissistic; Bord: IPDE borderline; Com: IPDE compulsive; Avoid: IPDE avoidant; Dep: IPDE dependent; BIDR: social desirability.

** $p \leq .01$ all other significant correlations * $p \leq .05$

With regard to the *positive social outcome* aggression motive, social desirability was entered first and it explained 1.5% of the variance in use of this motivation. After entry of all ten interfering personality traits the total variance explained by the model as a whole was 34.8%, $F(11, 222) = 10.3, p < .01$. These interfering traits explained an additional 33.3% of the variance in aggression motivated by positive social outcomes, $R^2 \text{ change} = .20, F \text{ change}(10, 222) = 39.43, p < .01$. In the final model, only three traits were significant, with antisocial recording a higher beta value ($\beta = .24, p < .01$) than narcissistic ($\beta = .17, p < .01$) and schizoid ($\beta = .14, p < .01$) personality disorder traits.

In terms of the *protection* aggression motive regression analysis was used to consider the predictive ability of personality disorder traits. Social desirability was entered first and explained 8.6% of the variance in use of the protection motive. After entry of the ten personality disorder traits, the total variance explained by the model increased to 30%, $F(11, 222) = 9.7, p < .01$. In the final model, only two variables were statistically significant, with antisocial recording a higher beta value ($\beta = .36, p < .01$) than dependent ($\beta = -.21, p < .01$) personality disorder traits. This indicated that these personality disorder traits in particular were significant predictors of aggression motivated by protection.

Interfering personality traits were examined for their ability to predict aggression motivated by *pleasure*. A hierarchical regression was used with socially desirable responding entered first into the model followed by the ten personality disorder traits. Twenty four per cent of the variance was explained by social desirability, after entry of the personality traits at Step 2 the total variance explained by the model was 41.7%, $F(11, 222) = 13.8, p < .01$. These interfering traits explained an additional 17.7% of the variance in aggression motivated by positive social outcomes, $R^2 \text{ change} = .24, F \text{ change}(10, 222) = 6.4, p < .01$. In the final model, only three variables were significant, with borderline personality traits recording the higher beta value ($\beta = .20, p < .01$), than antisocial traits ($\beta = .19, p < .01$) and social desirability ($\beta = -.13, p < .01$).

9.14 Discussion

This study examined the influence of interfering personality disorder traits and

emotion regulation strategies on prisoners' offence and aggressive behaviours. It was found that interfering personality traits were better able to distinguish between types of prisoners and aggressors than emotion regulation strategies. As predicted it was found that narcissistic and antisocial personality disorder traits distinguished prisoners with a history of violent offending from those with no history of violence. In contrast, compulsive personality traits were particularly associated with non-violent as opposed to violent offending. Narcissistic personality traits are characterised by grandiosity, a need for admiration and absence of empathy for others. Antisocial personality disorder traits characterise a pattern of functioning where there is disregard for and violation of the rights of others (APA, 2013).

The finding that narcissistic and antisocial personality disorder traits are related to violent offending is consistent with previous research (Esbec & Echeburua, 2010; Hosie *et al.*, 2014; Logan & Johnstone, 2010). However, the mechanisms through which these interfering personality traits culminate in violent or non-violent offending are less clear, with explanations ranging from individual to multiple factors. Kim *et al.* (2007) described how narcissistic traits were predisposing individuals to violence through poor self-control when faced with an ego threat. In contrast, Nestor (2014), suggested that the association between interfering personality and violence must be understood in terms of four fundamental dimensions namely, impulsive control, affect-regulation, personality styles and contextual features. According to this, several pathways through which both narcissistic and antisocial personality disorder traits can culminate in violence are plausible. One example being an individual with reduced impulse control, the presence of a strong emotion such as anger, personality traits characterised by a disregard for and willingness to violate the rights of others, and contextual features such as interpersonal conflict, provocation and presence of behavioural dis-inhibitor such as alcohol, resulting in a violent offence.

The mechanisms underpinning the finding that obsessive-compulsive personality traits particularly distinguished non-violent from violent prisoners could also be understood through application of Nestor's (2014) framework. One example being an individual with reduced impulse control, the presence of a strong affective state such as despair and anxiety, personality traits characterised by intrusive

preoccupations, perfectionism or need for orderliness, urges towards antisocial action, and contextual features such as economic deprivation resulting in a non-violent offence like theft or fraud. Specific validation of the causal mechanisms underpinning the relationship between interfering personality traits and delinquency could not be established from the current study due to its exploratory nature. Yet given that personality factors distinguished types of prisoners this highlights the role of personality in delinquency and the need for professionals working with prisoners to evaluate and address the influence of such traits (Logan & Johnstone, 2010; MOJ, 2011).

Contrary to prediction, emotion regulation strategies did not distinguish between either types of prisoners (i.e. violent or non-violent) or aggressors (i.e. reactive, proactive, mixed motive). Previous studies have found differences between types of aggressors with regards to emotion regulation (Gross, 2014; Hubbard *et al.*, 2002; Vitaro *et al.*, 2002). A number of explanations could exist for this discrepancy. For instance, it could be due to methodology and sample differences with the previous studies having used children and general as opposed to adult forensic samples. The finding of no significant differences could equally indicate that a dominant and distinguishing regulatory strategy does not exist. This may be understood from the point of view that emotion regulatory strategies themselves are neither adaptive nor interfering (Shepps *et al.*, 2014) and that a number of other factors influence this process, such as the individual's emotional awareness, access to such strategies or timing of their use (Gross, 2014; Webb *et al.*, 2012).

Another explanation could be that most prisoners experience emotion dysregulation and have a limited range of strategies, resulting in failure to identify differences. This explanation is consistent with findings from another study with young prisoners that also found no differences in strategies, but the presence of emotion dysregulation (i.e. Heinzen *et al.*, 2011). It could be that differences in the use of emotion regulatory strategies exist, but perhaps in another domain of regulation not examined in this study such as situation modification or attention deployment approaches (Gross & Thompson, 2007). It also questions the appropriateness of continued research using only the reactive versus proactive distinction, since it does not seem to appropriately differentiate aggressors in this regard. When considered in

isolation, this finding also casts doubt on the role of emotion regulation in aggression among prisoners. Further analyses undertaken, however, indicated that certain emotion regulation strategies were predictors of aggression motivations and inhibitors even whilst controlling for socially desirable responding. These are considered later in this discussion.

It was predicted that personality disorder traits would vary between types of aggressors because of inherent differences in their developmental experiences and the influence of such traits on their aggression motivations. Specifically, it was hypothesised that borderline and histrionic traits would be linked to reactive, and narcissistic and antisocial traits associated with proactive and mixed type aggressors. Contrary to prediction, no significant differences were found for either reactive or proactive aggressors in terms of their traits. The finding that personality traits in the dramatic, emotional and erratic cluster (i.e. borderline and histrionic disorders) were not linked to reactive aggression was unexpected and contrasts with previous research indicating that their shared difficulties with impulse control and emotionality underlie their association (Esbec & Echeburua, 2010). The inconsistency between studies in this regard again perhaps questions the appropriateness of the reactive versus proactive distinction because of its difficulties in reliably differentiating aggressors when the weight of literature evidence indicates differences should exist. Methodological and measure differences to examine personality disorder traits could provide another explanation for this divergence between studies. The current study, for instance, utilised the IPDE screening tool to identify personality disorder traits, whereas other studies have utilised other measures.

The finding that increased antisocial and schizoid personality disorder traits distinguished mixed aggressors from other types was as predicted. This is a particularly interesting finding given that the likely co-morbidity of these personality disorder traits is relatively low (APA, 2013; Tasman *et al.*, 2008) and that they are classified in alternate diagnostic clusters (APA, 2013; Skodol, 2005). This strengthens their tenability as particular personality markers of mixed motive aggression. Antisocial personality disorder traits are characterised by impulsivity, irresponsibility, emotional volatility, pervasive disregard for the rights of others or

established rules, and self-serving deceit and manipulation. Hostility and aggressive tendencies towards others are central and distinctive features of this disorder (APA, 2013). Thus the association between antisocial and mixed motive aggression becomes clear given the significant crossover in their characteristic features. This finding is also consistent with previous writings that suggested individuals within this classification cluster are most likely to display aggression due to their more dramatic, emotional and erratic facets (Esbec & Echeburua, 2010).

The association found between mixed motive aggression and schizoid personality disorder traits is perhaps more challenging to explain. It is also contrary to previous research that suggested individuals with such odd or eccentric disorders were less likely to engage in aggression compared with the emotional and erratic cluster (Esbec & Echeburua, 2010). Conceptualisations of schizoid disorder emphasise an apathetic, solitary and anhedonian presentation, a limited interest in developing interpersonal relationships with others, and having instead a preference for fantasy or solitary activities. Explanations may, therefore, centre on the relative combination of personality traits, contextual factors and varying aggression motivations. For instance, the use of emotionally-driven aggression (reactive) could arise when they are placed in unfamiliar social situations that create conflict or an internal state prone to aggression. This could be particularly problematic in a prison environment, given the elevated population within a confined space (Ireland & Murray, 2005). Equally, their use of goal-orientated (proactive) aggression could facilitate and ensure their emotional and social distance from others. The finding that both antisocial and schizoid traits are related to mixed motive aggression is also consistent with Livesley's (2003) contentions, which are that most personality traits can influence individuals' functioning in many ways, rather than perhaps, as contended by others, that only certain traits are related to more distinct aggression motivations (i.e. Porter & Woodworth, 2007).

This study also investigated the components of aggression inhibition in prisoners. Somewhat consistent with previous research (i.e. Finkel, 2007), a four factor inhibitory model was indicated by the data, including the components *empathy and consequence evaluation*, *lack of success and need to protect self*, *traits and beliefs unsupportive of aggression* and *emotional control*. However, not all these

components were entirely aligned with existing frameworks. For instance, some parallels may be drawn between Finkel's (2007) personal and situational inhibitors with this study's components of *traits and beliefs unsupportive of aggression* and *lack of success and need to protect* inhibitors respectively. Yet clear differences emerge with regard to the *empathy and consequence evaluation* and *emotional control* inhibitors, which also cannot be easily accounted for by other frameworks. It is unclear whether these differences emanate from sample variations (i.e. student versus prisoners), or differences in terms of the nature of the frameworks themselves (i.e. theoretical versus applied). For instance, it would be challenging to assess comprehensively the influence of evolutionary inhibitors practically, whilst it not possible to refute the evolutionary basis of aggression theoretically (Tremblay, Hartup & Archer, 2005).

Megargee (2011) also indicated a key role for inhibitors in his multifaceted theory of aggression, specifically distinguishing between individual and situational inhibitors. These included factors such as the physical size of the target, response fear and non-availability of weapons. Whilst he identified a broad range of inhibitors, a number of factors indicated by this study such as the role of *empathy and consequence evaluation* and *traits and beliefs unsupportive of aggression*, are excluded. This suggests, therefore, that existing conceptualisations of aggression inhibition are not sufficiently supported by data from prisoners. Perhaps a revised hybrid model that includes certain elements from existing frameworks could provide a suitable conceptual model of aggression inhibition in prisoners. This could encompass a four-factor model of inhibition (Finkel, 2007) and more population specific inhibitors that promote self-control, such as those identified in this study.

With regard to the specific components of inhibition indicated by this study, associations can be drawn with concepts in the wider literature. For instance, the notions encapsulated by the *empathy and consequence evaluation* and *emotional control* inhibitors are consistent with principles emphasised by the Model of Goal Directed Behaviour (MGB: Perugini & Bagozzi, 2004). The MGB contends that the performance of any behaviour, or not, is dependent on individuals' rational choices related to likely outcomes and are influenced by emotion. The influence of certain inhibitory beliefs and traits can also be linked to the MGB (and its precursors such as

the Theory of Reasoned Action [Ajzen, 1991]), which emphasise a clear link between attitudes and behavioural actions (Perugini & Bagozzi, 2004). This finding also tentatively supports the outcome from the one study (i.e. Richardson & Boykin, 2011) that examined the applicability and favourably considered the MGB (Perugini & Bagozzi, 2004) and its principles in understanding aggression.

The identification of inhibitory components related to *lack of success and need to protect self* and *emotional control* is also not surprising when the literature on behavioural self-control is considered. This indicates that an individual's capacity for behavioural control is dependent upon dynamic person-environment interactions (Denson *et al.*, 2012; Muraven & Baumeister, 2000). In this literature two fundamental concepts exist namely, the depletion and bolstering hypotheses. The depletion hypothesis indicates individuals varying in states of self-control ability from depletion to replenishment. Whereas the bolstering hypothesis indicates that improved self-control through intervention reduces tendency towards negative actions associated with lowered self-control (Denson *et al.*, 2012). Consideration of the current findings in light of these hypotheses could be a valuable advancement to this literature, which has failed to identify any such plausible components of self-control and behavioural inhibition. This is despite many theories highlighting the significance of self-control with prisoners (Battencourt *et al.*, 2006; Gottfredson & Hirschi, 1990). One such possible consideration would be whether targeted intervention in line with the components of inhibition as indicated by this study, further reduce the likelihood of non-aggression above those already indicated in the literature (i.e. Hatcher *et al.*, 2008).

A further important finding from this study was that the three-factor solution for aggression motivation identified in study 2 was confirmed, with some slight changes to its item structure. As predicted, this revised model essentially consisted of *positive social outcomes*, *pleasure and emotional management* and *protection* motivations. This indicated that the existing specified distinction for aggression motivation, as either reactive or proactive (Raine *et al.*, 2006), was not corroborated and is arguably inappropriate for use with prisoners. This confirmed concerns in the literature relating to the oversimplified and generalised use of this distinction (Bushman & Anderson, 2001; Ireland, 2011). The finding that some motivations, such as

protection and *pleasure*, demonstrated stability between studies supported contentions described by motivational theorists, that even diverse behaviours could be driven by few underlying motives (Reiss, 2004). These motivational components were also found in other studies (i.e. Urheim *et al.*, 2014) adding to their validity and importance in conceptualising aggression motivation.

The confirmation and identification of the components of aggression motivation and inhibition resulted in an opportunity to examine further their underlying personality and emotion regulatory characteristics. Aggression motivated by *protection* was significantly predicted by the expressive suppression emotion regulation strategy. This particular strategy relates to individuals actively inhibiting their on-going emotional experiences and behaviours. Thus, their aggression could be a last resort when mounting emotional arousal, associated with fears or anxiety due to threats to themselves or others, are expressed. Indeed, use of aggression as a means of protection in a hostile and threatening environment such as a prison was noted previously (Ireland & Murray, 2005). The current finding may also be tentatively interpreted as supportive of the view that emotion regulation strategies can be adaptive and interfering depending upon the context and timing of their application (Shepps *et al.*, 2014). This notion is also supported by the result that expressive suppression was a predictor of *lack of success and need to protect self* inhibitor. Thus, certain emotion regulation strategies were indicated as predictors of both motivations and inhibitors of aggression.

Cognitive reappraisal involves regulation through cognitive reinterpretation and re-evaluation of emotional states and contextual features. It has been implicated as a more effective approach towards the regulation of positive and negative emotions (Gross, 2014; Webb *et al.*, 2012). In this study it was found to be a significant predictor of *traits and beliefs unsupportive of aggression*. The association between beliefs and emotion regulation is certainly not novel, given that cognition features prominently in many theories of emotion and *vice versa*. In their study Tager *et al.* (2010) found poor emotion regulation and normative beliefs predicted use of prisoners' habitual aggression. It is thus also conceivable that the association between cognitions and emotion regulation strategies extends to non-aggression. Yet, a smaller portion of the total variance was explained by cognition and emotion

regulation in this study (19%) compared with Tager *et al.* (2010) study (25%) and this suggests a more complex relationship between these factors with aggression inhibition as opposed to motivation.

The current study indicated that certain affective states, such as empathy, guilt, shame, fear, or the absence of anger, were components of aggression inhibition (see *empathy and consequence evaluation* and *emotional control*). The finding that both expressive suppression and cognitive reappraisal strategies were significant predictors of this component emphasise the importance of emotion regulation with regard to self-control and aggression inhibition. The contention that reappraisal is a more effective strategy than suppression (Gross & John, 2003; Webb *et al.*, 2012) was also supported by this study as it made the greater contribution to the regression model. It also supports the interconnection between cognition, emotion and aggression as suggested in the literature (see Chapter 4).

Existing integrated models of aggression (i.e. GAM; Anderson & Bushman, 2002; Catalyst Model; Ferguson *et al.*, 2007) acknowledged the role of personality traits, although they lack detail about the precise traits responsible and the mechanisms through which they culminate in aggression. These models emphasise, albeit in varying degrees, the role of predisposing and temperament factors, cognitive processing, affect-regulation, environmental strain and social information. This study's findings provided one of the first empirically-based pathways through which certain interfering personality traits predicted prisoners' aggression motivations and inhibitions.

It was found that aggression motivated by *positive social outcomes* was predicted by antisocial, narcissistic and schizoid personality traits. There are a number of possible explanations for these associations. First, antisocial traits could influence cognitions resulting in the individuals perusing their personal aims through aggression with disregard for others. Individuals with narcissistic traits can often present with a fragile view of self and hypersensitivity to perceived challenges to their social status or desired actions (Coid, 2002). Thus, these traits could influence information processing and affect regulation towards aggression motivated by *positive social outcomes*. The finding that both antisocial and narcissistic traits are related to

aggression, as opposed to its inhibition, is consistent with the limited studies that have examined interfering personality traits and aggression in prisoners (i.e. Coid, 2002; Daffern & Howells, 2009).

In addition to being a predictor of aggression motivated by *positive social outcomes*, traits of antisocial personality disorder was a significant predictor of both the *protection* and *pleasure and emotion regulation* motivations. This supports the perspective that an antisocial orientation, underpinned by a unique cluster of personality characteristics, can generally influence a range of behaviours including aggression in a variety of forms (Daffern & Howells, 2009; Dolan & Blackburn, 2006). This study's findings indicated that other personality disorder traits were unique to certain aggression motivations, rather than being more generalised as found with interfering antisocial personality traits. Interfering traits of borderline personality disorder are a good example, which were only a significant predictor of aggression motivated by *pleasure and emotion regulation*. This disorder is characterised by intense and unstable emotions and moods resulting in frequent outburst and impulsive behaviours. This finding indicates the possibility that the motivation for most acts of aggression by those with borderline traits centre on their promotion of intrinsic pleasure and/or as a means of regulating emotional experiences. This would be consistent with the view that personality disorders are capable of influencing repetitive behaviours and individuals' functioning in predictable ways (Millon, 1990; Widiger *et al.*, 2007).

Traits of dependent personality disorder are another noteworthy example as it was found only to predict the *protection* aggression motivation. Usually this disorder is characterised by the avoidance of social tension and interpersonal conflict (Esbec & Echeburua, 2010; Widiger *et al.*, 2007). The core features of this disorder concern an overreliance on others, a pervasive fear of losing others, and an often take a submissive stance to others' demands (APA, 2013). Millon (1990), however, described that often individuals with dependent disorder adjust their behaviour to please those on whom they depend to ensure a constant supply of nurture and reinforcement from their environment. Thus in a highly hostile and confrontational environment where displays of aggression are frequent, as often found in prisons (Ireland & Murray, 2005), the traits of dependent individuals could culminate in

aggression as a means of protecting themselves, others and/or their associations with an important other. Such traits may also influence cognitions, affect and information-processing in favour of aggression when faced with perceived threats of abandonment from others they depend on. This finding indicates that in particular circumstances even those with dependent traits could resort to aggression as either an adaptive or interfering behaviour (Ireland & Murray, 2005). This suggests that associations between most personality disorders and prisoners' aggression in prisoners should not be overlooked (Livesley, 2003). A contention which extends to the assessment and supportive therapeutic interventions with prisoners where there is need to be mindful of the possibility that most pronounced traits, even those not traditionally considered with aggression (i.e. Esbec & Echeburua, 2010), could result in aggression under certain conditions.

As predicted, association was found between interfering personality traits and two identified components of aggression inhibition. No significant predictors were however identified for either the *empathy and consequence evaluation* and *emotional control* components, which was not predicted. This suggests the underpinning factors for these components of aggression inhibition could lie outside of personality and with another variable of interest such as cognition. The role of cognition in these particular components was not directly explored, although a link would be consistent with this study's other results, such as that cognitions relate to emotion regulation strategies (i.e. cognitive reappraisal and emotional suppression) and were indicated as predictors of these components previously.

The role of cognition and personality in aggression inhibition is perhaps further emphasised by other findings from this study. For instance, avoidant and schizoid interfering personality traits predicted the *traits and beliefs unsupportive of aggression* component. As schizoid traits were a predictor of this component, as well as a component of aggression motivation as described previously, this highlights the functional versatility of personality and its influence on behaviours. This finding further strengthens the claim that most interfering personality traits could influence aggression although in varying magnitudes, alternative mechanisms and directions (Johnson *et al.*, 2000; Livesley, 2003; Nestor, 2014). Nonetheless, it must be remembered that personality traits can be adaptive or adaptive depending on context.

Thus, the findings that certain interfering personality traits are related to aggression inhibition could indicate that particular distinguishing elements of these disorders are capable of inducing non-aggression despite the onset of aggressive inclinations. These elements could encompass one or more of the core features of personality namely, patterns of cognitions, emotional responses and behavioural tendencies (APA, 2013). On this basis, the apathetic, solitary and limited interest of establishing relationships or social standing that characterise the schizoid disorder could have an inhibitory influence on aggression.

Avoidant personality traits only predicted the components of aggression inhibition (i.e. *traits and beliefs unsupportive of aggression* and *lack of success and need to protect self*), rather than both inhibitors and motivations, as found with interfering schizoid traits. This could indicate its facets are more discrete and are important with regard to controlling aggression. Avoidant personality disorder is characterised by a pattern of hypersensitivity to negative evaluation, increased anxiety, feelings of inadequacy and pathological avoidance of social situations and interactions (APA, 2013). The avoidance aspect of this presentation, although interfering in many settings could be adaptive in others, such as the avoidance of conflict in a hostile prison environment. An avoidance personality orientation could equally reflect individuals' predominant inclinations towards opportunities to avoid conflict because of non-aggressive beliefs. Obsessive-compulsive interfering personality traits were also only associated with aggression inhibition. These traits were found to be a significant predictor of the *lack of success and need to protect self* component. Individuals with these traits are preoccupied with adherence to rules and regulations, demonstrate perfectionism and desire orderly control (APA, 2013). This can also be understood from the perspective that certain aspects of these traits could be functional in particular contexts, including prison settings, which emphasise order and reinforce rule adherence.

In summary, the findings relating to personality add clarity to the traits associated with both aggression inhibition and aggression motivation in prisoners. This discussion has also considered the possible mechanisms underpinning these associations. This includes those indicated in previous research, such as the influence of personality on aggressive beliefs, affective states and social information

processing on motivation, and those drawn from the current findings such as how certain personality disorder traits could be functional in particular circumstances towards non-aggression. The findings considered here identify the particular personality traits related to aggression motivations and inhibitors. This addresses the voids in the literature and adds evidence to the inadequate accounts of the role of personality in existing integrated models of aggression (i.e. Anderson & Bushman, 2002; Ferguson *et al.*, 2008; Finkel, 2007; Megargee, 2011).

9.15 Limitations of this study

This study attended to many neglected areas of research and its results are useful for advancing the concepts of aggression motivation and inhibition in prisoners, although it does have its limitations. One possible limitation is related to the use of a newly devised measure, such as the AIQ which is open to scrutiny concerning its validity. However, no other measure existed in the literature and the AIQ was the first to consider this highly important concept. Only further and continued research could address this tautology relating to the validity and value of the AIQ and the study of concepts such as aggression inhibition.

A second limitation was this study's focus on only two emotion regulation strategies namely, expressive suppression and cognitive reappraisal. Although these are the most extensively studied strategies in this branch of literature, clearly a greater array of strategies do exist, as emphasised by the Modal Model of Emotion Regulation (Gross, 2014). While it was useful to commence the study of association between prisoners' aggression and their emotion regulation strategies, it is uncertain whether a more narrowed focus on two strategies to the detriment of others limited the results and conclusions that could be drawn from this study.

With regard to personality, perhaps the use of the IDPE screening tool was another limitation. Use of a screening self-report measure cannot be considered as a replacement for a full clinical evaluation by a qualified mental health professional, which unfortunately was outside of the scope of the current research. Thus the current research has focused on interfering personality traits at most, rather than a diagnosis of personality disorder in line with existing diagnostic classification systems, such as the Diagnostic and Statistical Manual of Mental Disorder (DSM-V) or International

Statistical Classification of Diseases and Related Health Problems (ICD-10).

GENERAL DISCUSSION

10.1 Discussion of overall findings

The current thesis demonstrated that aggression motivation among prisoners cannot be described as dichotomous. The inadequacy of the proactive versus reactive distinction (Raine *et al.*, 2006) as a conceptual framework was highlighted. An alternative structure was examined and refined across the three studies resulting in a three-factor solution being indicated in the final study. This new component structure for aggression motivation incorporated the principles emphasised by the previous reactive versus proactive distinction (i.e. goal orientated actions and emotional reactivity), yet advanced its consideration with much broader elements such as *pleasure, positive social outcomes* and *protection*.

A preliminary component structure for aggression inhibition was also developed from this thesis. This included factors such as *empathy and consequence evaluation, lack of success and need to protect self, traits and beliefs unsupportive of aggression, and emotional control*. This was a noteworthy contribution of the current studies, especially given that previous considerations of aggression inhibition have been predominantly theoretical and relatively untested with prisoners (i.e. Finkel, 2007; Megargee, 2011). These novel component structures for both motivation and inhibition were further examined with many other neglected areas of research, such as emotion regulation, cognition, personality and developmental factors.

With regards to emotion, anger was demonstrated by study 1 to be linked to all motivations. The traditional view that emotion is only associated with certain motivations, such as reactive (Raine *et al.*, 2006), was unsupported. This further questioned the validity of the reactive versus proactive distinction as applied to prisoners' aggression. This has implications for both researchers and practitioners whose adoption of this distinction for empirical study or clinical decision-making may consequently be flawed. This finding also emphasised that emotion has a prominent and central role in aggression motivation, and most likely to be a contributory factor along with cognition given they (cognition and emotion) are both

inextricably linked in the literature (DeWall & Anderson, 2011; Huesmann, 1998; Omadahl, 2014; Schacter & Singer, 1962). The importance of affect regulation was also demonstrated by this thesis, as some strategies were significant predictors of certain aggression motivations and inhibitions. There is a return to emotion regulation later in this discussion. Yet the requirement for an applied integrated model of aggression to include affect and its regulation is thus highlighted. Next considered are the outcomes relating to the core underlying factors in terms of aggression motivation and inhibition as examined in this thesis, namely developmental, cognitive, affect regulation and personality.

Developmental characteristics of aggression motivation in prisoners

This thesis showed that developmental and life experiences were important with regards to aggression motivation. Farrington (1995) and others (i.e. Moffitt, 2007) described how the developmental characteristics contributing to delinquency and aggression were essentially the same. However, Derzon (2010) first indicated that some important differences exist in terms of the developmental factors underpinning aggression and delinquency. The evidence from this thesis was consistent with Derzon's (2010) summation, as certain developmental factors appeared distinct to aggression. For instance, group comparisons by offence and aggression types found some similar underlying developmental factors, such as experiences of childhood maltreatment and early onset of delinquency or aggression. These could thus be generalised developmental markers for both delinquency and aggression, as suggested by previous researchers (Farrington & Loeber, 1999; Loeber *et al.*, 2008).

Other developmental factors, however, were specifically related to aggression and not delinquency. Factors such as bullying others, alcohol or drug use and parenting styles (i.e. elevated rates of parental praise, routine and support) were indicated in this respect. In terms of parenting styles, these experiences could be important to aggression through caregivers' conscious or unconscious reinforcement of factors that promote habitual aggression (Huesmann, 1998; Tremblay, Hartup & Archer, 2005; Widiger *et al.* 2007). Differences in insecure attachment such as pre-occupied and fearful styles were linked to aggression and dismissive characteristics prominent in delinquency. Collectively, these findings suggest the need to extend consideration of developmental and life experience factors beyond those traditionally considered, such

as early maladjustment (Loeber *et al.*, 2008), to include other underlying factors that may foster habitual aggression such as parenting style or other early markers such as substance use and bullying behaviours.

This thesis demonstrated that forensic aggressors could not be distinguished in terms of their negative developmental experiences. This contrasts with the core assumptions made by existing pathway models for aggression (i.e. the Sequential [Vitaro & Bredgen, 2005] and Parallel Models [Dodge, 1991]). The idea of a *simultaneous* developmental pathway was, therefore, proposed in Chapter 8 of this thesis. This idea draws upon the principles of prior models, such as the potential for one or more motivations to become habitual and dominant at any one time (as described by the Parallel Model, Dodge, 1991), and also the principles of individual and environmental reinforcement of aggression (as indicated by the Sequential Model, Vitaro & Bredgen, 2005). A key difference with the simultaneous pathway is that action reinforcement for multiple motivations occurs simultaneously, which then strengthens response tendencies and decisions towards individual or mixed aggression motivations.

The new simultaneous pathway proposed by the current research has potential to address the limitations of its predecessors, which includes their over-focus on the reactive vs. proactive distinction, difficulties in accounting for multiple motivations, and research findings that the development of aggression do not always adhere to the sequential or parallel formats (see Chapters 3 and 8). There is need for further validation and testing of this notion, as acknowledged in Chapter 8. Nevertheless the argument exists that considerations of the developmental roots of aggression should not be bound by the limitations of existing models (Dodge, 1991; Vitaro & Bredgen, 2005), and any integrated model of aggression should be capable of explaining the multifaceted developmental origins of aggression motivation. As indicated by this thesis, models prior to the simultaneous pathway are limited with regards to their capacity to account for the multifaceted nature of aggression motivation.

It was clear from this thesis that the core developmental factors related to *pleasure* motivated aggressors were problematic childhood behaviours, parenting styles that included elements such as praise and a preoccupied adult attachment. Problematic childhood behaviour was the most influential factor in this motivation. The finding

that parenting style and problematic childhood behaviours related to the same motivation is consistent with literature that indicated poor or misguided parenting is linked to a variety of internalised and externalised difficulties, including aggression (Gershoff, 2008; Stormshak *et al.*, 2000). Yet, the finding that these three factors together reflected a developmental profile representative of *pleasure* motivated aggression is novel. Therefore, the mechanisms and processes through which they culminate in this motivation for aggression remain unclear. As advocated by many existing integrated theories of aggression, developmental factors alone are not solely responsible for aggression with factors in other domains such as cognition, affect and personality of importance (Ferguson *et al.*, 2008; Huesmann & Taylor, 2006).

Only negative childhood experiences characterised by maltreatment, featured in the developmental profile for *protection* aggression motivation. This suggested that the developmental factors underlying this motivation are quite distinct, a finding consistent with previous research that suggested negative childhood experiences and early maladjustment have long-lasting psychological and behavioural impacts throughout life (Finkelhor *et al.*, 2011). Such experiences were seen to have a contagion effect influencing individuals' cognitions, social information-processing that favoured hostile attributions and responses, and emotional functioning (Coccaro & Jacobson, 2012; Murray-Close *et al.*, 2009). Whilst other studies have linked negative childhood experiences to aggression in prisoners (i.e. Kolla *et al.*, 2013; Sarchiapone *et al.*, 2009), this thesis was the first to examine their influence on underlying aggression motivation. Therefore, the finding of a single characteristic should not be viewed as a limitation, especially given the wider domains potentially influenced by developmental factors, such as cognition, personality and emotion regulation. The developmental profile for this particular motivation, however, indicates negative childhood experiences provide the setting conditions through which later factors may influence the enactment of aggression as a means of protection for the self and/or others.

Problematic childhood behaviours, negative childhood experiences and dismissive avoidant adult attachments featured as developmental factors most relevant to the *positive social outcomes* aggression motivation. This developmental profile is interesting given that it shared factors (i.e. negative childhood experiences and

problematic behaviours) with other motives (i.e. *pleasure* and *protection*). Previous research has identified links between these factors individually and aggression (Corvo, 2006; Lyons-Ruth *et al.*, 1993). However their combination within a developmental profile for prisoners motivated to aggress by positive social outcomes is new and not indicated previously in the literature. Perhaps the most prominent factor in this profile is the adult dismissive-avoidant attachment style, given that it was not indicated in any other profiles. Insecure adult attachments are formed in childhood, as negative experiences influence internal working models and cognitive behavioural systems throughout life (Bowlby, 1988). The finding that *no* attachment styles were sole factors in a developmental profile of aggression motivation is consistent with arguments in the literature that the relationship between attachment and aggression could never be causal. The influence of additional and mediating factors is thus emphasised as important (Calkins & Leerkes, 2011; Savage, 2014). This thesis, therefore, added to the limited knowledge of the role of attachment in aggression motivation among offending populations (Savage, 2014). It also indicated how single and multiple item developmental profiles exist for each aggression motivation.

Personality characteristics of aggression and non-aggression in prisoners

Developmental experiences are certainly influential in the formation of adaptive and maladaptive personality and their impact on behavioural functioning (Livesley, 2003). Personality is identified as having an important role in aggression. Some researchers have indicated that similar components could underpin aggression and non-aggression, such as personality (Anderson & Bushman, 2003; Ferguson *et al.* 2008; Nestor, 2014). Yet, prior to the current set of studies these concepts had not been comprehensively examined with prisoners.

This thesis demonstrates that existing integrated models of aggression (i.e. Anderson & Bushman, 2003; Ferguson *et al.*, 2008) lack detail about the personality traits most responsible for aggression and non-aggression. There is a long-standing view that all maladaptive traits could result in aggression in particular circumstances (Anderson & Bushman, 2002), whilst there is limited mention of the traits related to non-aggression (Livesley, 2003). This position contrasts with the emerging evidence that *certain* personality traits have greater association to aggression (Coid, 2002; Logan &

Johnstone, 2010; Yang & Coid, 2007) and others to non-aggression (Esbec & Echeburua, 2010). The lack of research on maladaptive personality and aggression among prisoners has limited evaluation as to whether distinct personality profiles for aggression and non-aggression could be identified.

Maladaptive personality traits did in fact differ between violent and non-violent prisoners. Consistent with previous studies (i.e. Logan & Johnstone, 2010; Yang & Coid, 2007), antisocial and narcissistic were more prominent among prisoners with histories of violence. Obsessive-compulsive traits were found elevated among prisoners with no known history of violent offending. These findings support claims that maladaptive personality is a fundamental consideration in any exploration of prisoners' behaviour (Hosie *et al.*, 2014), but that accounting for the individual types of personality is important.

In this research antisocial and schizoid personality disorder traits were found to be significantly elevated among mixed motive aggressors. This suggested that characteristics of certain personality traits result in vulnerabilities towards multiple aggression motivations. As discussed in Chapter 9, such tendencies towards aggression could be due to an individual's disregard for rules and the rights of others (characteristic of antisocial personality), or interpersonal functioning difficulties and attempts to avoid close relationships with others (characteristic of schizoid personality). These findings provide an insight into the possible underlying functions of personality in aggression, whilst supporting the notion that certain maladaptive traits induce a state of increased readiness to aggress. The noteworthy merits of this research over its predecessors (i.e. Coid, 2002; Daffern & Howells, 2009) include its utilisation of information obtained directly from prisoners rather than its inference by researchers from file documentation.

Certain maladaptive personality traits were found to be predictors of individual aggression motivations. In particular, the personality characteristics of antisocial, narcissistic or schizoid traits predicted aggression motivated by *positive social outcomes*. A profile inclusive of antisocial and dependent traits was related to aggression motivated by *protection*. Borderline and antisocial traits were further predictors of the *pleasure* aggression motivation. These findings are important given

that only one personality trait predicted more than one aggression motivation. Antisocial personality traits were ubiquitous to all aggression motivations, suggesting they could reflect a more generic personality marker for aggression among prisoners. Its core traits, including disregard for rules and willingness to violate the rights of others toward one's personal interests, could explain its broader association to these varying aggression motivations.

The fact that the majority of maladaptive personality traits were more specific in terms of their association to each motivation is important. It indicates the possibility that personality profiles for each motivational distinction can be identified, which contrasts with the view that all traits are relevant to all forms of aggression. It is not being suggested here that each individual has only one distinct personality to aggression motivation profile. It is perhaps likely that the same individual could have different profiles at different times and these contribute to their habitual use of aggression. Identification of distinct personality profiles for each aggression motivation could have wide-ranging implications, particularly if considered in terms of their core characteristics, and how these combine and interact with other factors (such as cognition and/or affect) to influence decision making to engage in aggression is very important. Clinical implications could include the enhancement of aggression risk scenario planning and predictions for prisoners who display habitual aggression, and could suggest that psychological assessments should aim to examine individual traits for their influence on functioning, or in guiding interventions to reduce aggression.

Furthermore, the current research identified that certain personality traits inhibited aggression. Obsessive-compulsive personality traits, for example, predicted the *lack of success and need to protect self* inhibitor. In contrast, avoidant and schizoid traits predicted the inhibitor *traits and beliefs unsupportive of aggression*. As described in Chapter 9, it could be that underlying characteristic features of these traits (i.e. sensitivity to negative evaluation and avoidance of social situations and interactions as found with maladaptive avoidant personality) function to promote non-aggression in certain circumstances. For example, avoidant individuals' may relinquish their position in a conflict situation with another and not engage in aggression due to concerns over being evaluated negatively by others. The mechanisms and processes

underlying the relationship between personality and non-aggression, however, remain unclear and could not be ascertained from this research due to its exploratory nature and relatively narrow consideration of aggression inhibition.

The fact that some aggression inhibitors were found to be unrelated to personality is important and suggestive of the involvement of other factors. This would fit with the view of other researchers (i.e. Johnson *et al.*, 2000; Nestor, 2014) that in combination with other factors, personality can influence the magnitude and direction of behavioural actions. It is conceivable that these underlying factors could include a variation of the emotion, cognitive and developmental factors that influence aggression motivation. Further research would be needed to approve or disprove this premise. Nonetheless, there is a need for integrated models of aggression to recognise the more specific role of personality in aggression motivation and inhibition, as this appears inadequately considered and addressed in existing integrated theories (Anderson & Bushman, 2002; Ferguson *et al.*, 2008).

Emotion regulatory characteristics of aggression and non-aggression in prisoners

Emotion regulation concerns the processes utilised by individuals to influence their internal affective state and consequent functioning (Gross, 1998). Aggressors are often distinguished based on their capacity to and regulation of emotion (Berkowitz, 2012; Megargee, 2011; Novaco, 2007). Cognitive re-appraisal and expressive suppression remain the two most studied emotion regulatory approaches (Gross, 2014). In brief, cognitive re-appraisal involves regulation through re-evaluation of the meaning attached to emotional states. In contrast, expressive suppression concerns the active inhibition of on-going emotional states. A narrowed range of strategies or an inflexible application is implicated in aggression (Gross, 2014; Robertson *et al.* 2014). Thus, their examination in terms of prisoners' aggression was needed having not been undertaken previously.

This thesis examined emotion regulation because of its significant understudy among prisoners and limited consideration within integrated models of aggression that predominantly focus on emotion generation and its influence on cognition (Gross, 2014, Robertson *et al.*, 2014; Tager *et al.*, 2010). The first study found emotion, notably anger, was related to all aggression motivations. Thus, emotion regulation

was an important avenue of investigation. This research found no significant differences in emotion regulation when the reactive versus proactive distinction was utilised. This was not as expected given that links should theoretically exist with reactive aggression and were indicated by previous research with non-offending populations (Gross & John, 2003; Gross, 2014; Szasz *et al.*, 2011; Tolin & Street, 2001; Webb *et al.*, 2012). Further reservations, therefore, emerge concerning the reliability and usefulness of the reactive versus proactive aggression distinction with prisoners.

Nonetheless, the significance of emotional regulation with regards to aggression and non-aggression was demonstrated. Expressive suppression, for instance, predicted use of the *protection* aggressive motive and the *lack of success and need to protect the self* inhibitor. The finding that emotional suppression was linked with aggression is consistent with the literature. Robertson *et al.* (2014) for example, suggested five functional pathways through which emotional suppression or over-regulation could result in aggression. These include the creation of an aggressive prone internal state, reduced capacity for self-control, increased physiological arousal, impaired and cognitive processing and diminished social networks. Yet, this research was the first to indicate its specific role with aggression motivated by *protection* for the self or others. It was not possible to evaluate the findings in relation to inhibition with other studies because of the novel nature of the current research. In other studies expressive suppression was found to have little impact or to even increase emotional states (Webb *et al.*, 2012). This potentially highlights the universality of emotion with regards to aggression or non-aggression and the transient influence of regulatory strategies, which are described as neither inherently adaptive nor maladaptive (Gratz & Roemer, 2004; Gross, 2014).

Cognitive reappraisal and expressive suppression were, however, not related to all aggression motivations and inhibitors. No significant associations were found with *pleasure* or *positive social outcomes* motivations, or with the *empathy and consequence evaluation* inhibitor. This could be due to the fact that only two regulatory strategies were studied from a number of other possibilities (Gross & Thompson, 2007). It could also be that emotion regulation does not have a salient underlying role in the culmination of these motivations or inhibitors. This is plausible

given that evidence from the current research implicated developmental, personality and cognitive factors as being more influential to these motivations and inhibitors as described later in this discussion.

The literature review undertaken for the current studies indicated that cognition and emotion are related concepts. This was further evident when the emotion regulation data was examined, as the regulation strategy of expressive suppression predicted the inhibitory component *traits and beliefs unsupportive of aggression*. Cognitive reappraisal was also the strongest predictor of the *emotional control* inhibitor. In the aggression literature, cognition and emotion are considered united in their creation of an internal state that induces aggression (Anderson & Bushman, 2002). The current research indicated cognition and emotion could equally induce an internal state that inhibits as well as motivates aggression. This adds further weight of evidence to the contention of the current research that similar underlying factors (i.e. cognition, affect, developmental and personality) could underlie aggression and non-aggression, with differences in their content and characteristics resulting in alternative actions. An exploration of the cognitive characteristics of aggression motivation is discussed next.

Cognitive characteristics of aggression motivation in prisoners

It has long been indicated that aggression originates from biased cognitions and deficiencies in social information-processing (Anderson & Bushman, 2002; Crick & Dodge, 1994). Emotional arousal increases any misinterpretation with cognition and emotion both linked to aggression (Huesmann, 1998). It is clear from the literature review that a substantial body of evidence from studies with children and non-offenders supports these notions. Research with forensic samples is underdeveloped by comparison, yet the research that exists also indicates a key role for cognition in aggression (Bowes & McMurrin, 2013; Ireland & Murray, 2005; Smith & Waterman, 2004).

The current research addressed gaps left by previous studies with prisoners through examining their specific associations between cognition (i.e. beliefs and schemata) and aggression motivations. According to Huesmann (1998), cognitive beliefs filter social information activating behavioural scripts that result in aggression. Schemas are overarching cognitive structures encompassing beliefs, past memories, knowledge

and action expectations, which guide behaviour including aggression. Results from this thesis indicated that the number of aggression supportive beliefs was elevated among prisoners with violent convictions as opposed to non-violent convictions. Cognitive schemata also distinguished these offender groups. Such findings add to the limited number of previous studies (i.e. Bowes & McMurrin, 2013; James & Seager, 2006; Milner & Webster, 2005), and support the contentions of researchers that social-cognition is important in understanding prisoners' behaviour.

A key element of the current research was the exploration of links between cognition and aggression motivations. It was found that *mixed motive* aggressors had an increased number of normative aggression beliefs compared to other types (distinctly reactive or proactive). This initial finding was important given that the literature indicates such beliefs underlie the filtering of social information and activate behavioural scripts relating to aggression (Huesmann, 1998). The possibility that an increased number of normative beliefs facilitated the activation of multiple aggressive motives was an explanation discussed in Chapter 8. These results indicated that cognition could thus be important in all aggression motivations.

This thesis then examined whether normative beliefs were important in the motivations assessed by the AMQ. It was found that only prisoners motivated to aggress by *positive social outcomes* had elevated numbers of normative aggression beliefs. Possible explanations were evaluated in Chapter 8, yet essentially this evidence indicated that certain normative beliefs could be more important in some aggression motivations than others. This was further supported by findings that two particular beliefs (i.e. 'if someone is aggressive towards you its ok to be aggressive back' and 'aggression is need to stop others walking over you') were predictors of aggression motivated by *protection*. This evidence indicated that the underlying beliefs influencing aggression motivations, such as *positive social outcomes* and *protection*, are distinct. It also suggested that normative beliefs may not be important in other motivations, such as *pleasure*, which could be underpinned by other factor/s such as personality and/or affect. This is consistent with views that the influence of social-cognition in all forms of aggression is overstated (Ferguson *et al.*, 2008).

The importance of cognitive schemata in aggression was, however, highlighted in this

thesis. Young *et al.* (2003) described an evolutionary basis for schemata with further developmental events reinforcing maladaptive and adaptive cognitions. Few prior studies had explored the influence of schemata on aggression, and none had examined adaptive and maladaptive schemata and their association with aggression motivation. The current research was novel as it examined cognition and aggression motivation in prisoners, and therefore is highly relevant to our understanding of the underlying cognitive characteristics of aggression. This research showed no significant differences in schemata (either adaptive or maladaptive) when the reactive versus proactive aggression distinction was utilised. Given that differences were established by offence type and AMQ motivations, in line with theoretical principles (i.e. Young *et al.*, 2003), this casts further doubt on the value of the simplistic reactive versus proactive distinction for prisoners.

Young *et al.* (2003) stated that negative influences from others and/or trauma have a role in the development of maladaptive schemata. In relation to schemata *intolerant of others* for example, this would suggest there has been developmental learning that others are irritating, uncaring and interpersonal relationships not worthy of attention. This is relevant to the finding that some cognitive schemata were predictors of certain aggression motivations (i.e. protection) and highlights the potential aetiological and cognitive factors important in the formation of this aggression motivation.

The view, however, that aggression is solely underpinned by maladaptive schema was challenged by the results of this thesis. Elevated rates of the positive schemata were associated with prisoners' aggression motivated by *positive social outcomes*. The mere presence of positive schemata may be insufficient to thwart aggression among prisoners as some had previously considered (i.e. Milner & Webster, 2005). This thesis indicated that even positive schemata, such as being *hardworking* or *easy going*, could associate with aggression in certain circumstances. For instance, in a prison environment an offender wanting to work hard to achieve qualifications or an earlier release, and overarching goals being hindered by external factors such as another offender/s with contrasting objectives or frustrations could result in aggression. These findings have theoretical and clinical implications, such as the sole promotion of alternative positive schemata in prisoners through treatment, without attending to other underlying characteristics of their aggression motivation or

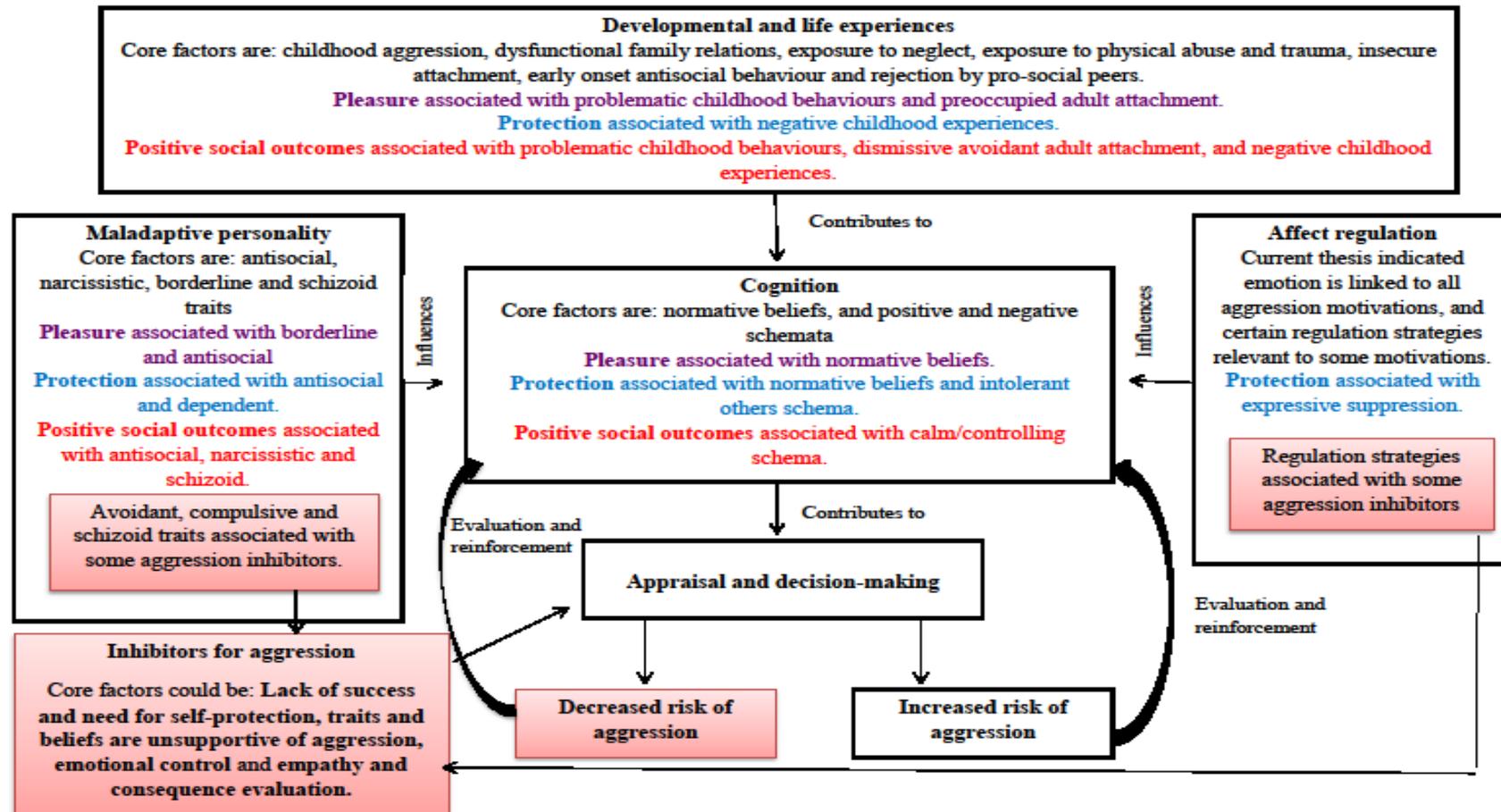
management of contextual factors, may not attenuate further incidents of aggression. The need for a broader and multifaceted approach to treatment and research considering cognitive schemata and aggression for prisoners is, therefore, illustrated.

In summary, this thesis indicated that cognition is important in aggression motivation highlighting a key and mediating role for normative beliefs and schemata. The evidence that some underlying cognitive characteristics were uniquely associated with certain motivations and not others, suggested the possibility that specific and distinct cognitive profiles may exist for each motivation. The importance of adaptive and maladaptive schemata and their possible interactions with other factors was also highlighted. This thesis provides further insight into the association between cognition and aggression that requires reflection in any integrated model and leads to the proposal of an integrated framework for aggression motivation and inhibition, one which incorporates developmental, cognitive, affective regulation and personality factors. This proposed model, the *Applied Integrated Model of Aggression Motivation (AIM-AM)*, is the first developed from the study of prisoners, and is thus considered a specialised integrated model of aggression for this population. It is fully illustrated and described in the next section.

10.2 Integrated framework for aggression motivation

The Applied Integrated Model of Aggression Motivation (*AIM-AM*) is presented diagrammatically in Figure 10.1. It is represented as a Knowledge Integration Map (*KIM*) of insight gained into prisoners' aggression from the current thesis. A *KIM* is a form of concept mapping, which is an analytical tool that depicts the components and articulates the relationship between concepts (Schwendimann, 2014), in this instance aggression motivation and inhibition.

Figure 10.1. Applied Integrated Model of Aggression Motivation (AIM-AM)



AIM-AM framework

According to the AIM-AM, developmental and life experiences promote vulnerabilities towards aggression. These result in the generation of, or adjustments to, cognition, which is pivotal in appraisal and decision-making processes linked to aggression. Cognitions bias social information processing, filter stored behavioural scripts, and overcome internal and external inhibitors to aggression. These cognitive structures include beliefs and schemata, which are influenced by affect through biased processing and reducing capacity for non-aggression cognition. Emotion regulation is incorporated via an ability to directly influence arousal states depending upon the goal of and regulatory strategy utilised. It is also contended that an individual's personality influences cognitions that promote aggression. Collectively, these underlying characteristics contribute to aggression motivation and an increased risk of aggression. Subsequent response evaluations and action reinforcements occur, and learning experiences promote future tendencies towards aggression.

In terms of what could inhibit aggression, it is contended that developmental factors promote vulnerabilities towards habitual aggression whilst certain life experiences through learning processes are also capable of promoting self-control. Cognitions, personality traits, emotion regulation and appraisal processes underpin aggressive inhibitors, such as *empathy and negative consequence evaluation*. The AIM-AM contends that inhibitors and motivations compete in rational choice judgements, and non-aggression is linked to their increased influence in decision-making. Post action evaluations and reinforcement return to contribute to cognition. The significant role of cognition in inhibition as well as aggression motivation is outlined. The AIM-AM contends that the core underlying characteristics of both aggression and possibly non-aggression are similar and are composed of developmental, personality, affect and cognitive factors. Yet the nature, content and combination of these factors relate to alternative outcomes (i.e. aggression or non-aggression). In Figure 10.1, the concept of aggression inhibition is represented separately and more tentatively as it was only examined in one study compared to motivation that was considered in all three studies. There is further discussion of implications and directions for future research in section 10.4.

Content of the AIM-AM

Existing integrated models of aggression (Anderson & Bushman, 2002; Ferguson *et al.*, 2008; Megargee, 2011) delineate how multiple factors interact and culminate in aggression. This principle is apparent in the AIM-AM through its inclusion of several important factors drawn

from the literature as most relevant to aggression namely, developmental, cognitive, affect and personality. The AIM-AM was influenced by the views noted in the Catalyst Model (Ferguson *et al.*, 2008), in highlighting the importance of personality and its impact on cognition and aggression. A further core component of the AIM-AM drawn from the literature and research evidence is emotion regulation. Deficiencies in terms of a narrowed range of strategies or their inflexible application are linked to emotion dysregulation (Gross, 2014). These become associated with cognition through their influence on affect and either motivates or inhibit aggression.

The AIM-AM was influenced by existing theoretical propositions whilst also providing several new ideas to the field. It can be seen that the AIM-AM elicited concepts from theories such as the information-processing model of aggression (Huesmann, 1998). For instance, as shown in Figure 10.1, developmental factors and emotion were acknowledged and linked to cognition and cognitive processes. The notion that underlying cognition is strengthened through its repeat generation and reinforcement was incorporated and originates from this theory. Ireland and Murray's (2005) Applied Information Processing Model extended Huesmann's (1998) views, highlighting the notion of simultaneous appraisal and response generation processes. Prison environments and culture are likely to increase cognitive processing towards aggression, according to Ireland and Murray's model (2005). These principles were incorporated in the AIM-AM through its described pathways between life experiences (i.e. being in prison), cognition, and appraisal and decision-making domains.

Drawn from motivation theory, another notion in the AIM-AM is that aggression can be underpinned by a limited number of core motivations (Reiss, 2006). The findings of this thesis in terms of *protection*, *pleasure* and *positive social outcomes* motivates are incorporated as shown in Figure 10.1. The propositions of I³ theory (Finkel, 2007) and the Algebra of Aggression Model (Megargee, 2011) concerning the importance of both motivations and inhibitors have also been integrated into the AIM-AM. Researchers described a form of 'response competition' between alternative courses of action (Finkel, 2007; Megargee, 2011). This parallels the human motivation and rational choice literatures, which emphasise 'cost vs. benefit trade-offs' and rational choice in behaviour (Ajzen, 1991; Clarke & Cornish, 1985; Perugini & Bagozzi, 2004; Rotter, 1954; Weiner, 1994). These concepts are also adopted by the AIM-AM, forming the basis of the situational/response appraisal and decision-making domain, as illustrated. The notion of evaluation and reinforcement proposed by the AIM-AM

was drawn from information-processing models of aggression (Crick & Dodge, 1991; Huesmann, 1998) and the GAM (Anderson & Bushman, 2002). In line with these models, it is indicated that feedback processes influence future aggression and non-aggression through learning and reinforcement of associative cognitive structures.

Over the preceding Chapters, this thesis has suggested several plausible explanations for its varying findings. Yet four much broader, new conceptual ideas can be drawn from these discussions, which were incorporated into the AIM-AM. First, are the new component structures for aggression motivation and inhibition that expand existing distinctions more widely and are the best representation of these concepts, according to this research. Secondly, as opposed to a generalised model the notion of a specific integrated aggression framework for prisoners is proposed. This is to address limitations of current theory and population specific factors, such as their potentially unique developmental and life experiences such as prison detainment. Retention of factors was emphasised by other models, such as personality and cognition, and thus a blending of conceptually important factors in aggression was proposed.

Thirdly, the integration of pathways to aggression and non-aggression in a single applied framework is described. This is not entirely a new idea (i.e. Finkel *et al.*, 2007; Megagree, 2011), whilst the notion that similar underlying factors (e.g. developmental, personality, cognition and affect) could underlie both is. Finally, as opposed to traditional pathway models to aggression (i.e. parallel and sequential), this thesis described how sequential reinforcement of multiple motivations occurs, an idea capable of overcoming the limitations of existing models and is an idea not evident in the aggression literature.

10.3 Limitations of the research

A potential limitation that applies to all studies was that self-report measures were used to examine variables of interest. The possibility that prisoners' responses were guided by a perceptive, reporting or memory bias must, therefore, be acknowledged. As described in Chapter 8, the impact of retrospective evaluation of events, such as developmental experiences, could be less reliable. The possibility that prisoners' responses were biased by self-misperceptions must also be acknowledged. Certain personality disorder traits are noted for their influence on perceptions and experiences (Livesley & Jang, 2000), and therefore their contribution to prisoners' biased self-report is a possibility. The current studies were,

however, the first to obtain information directly from prisoners concerning motivation and other factors related to aggression. Other studies had utilised a file review methodology where underlying motivations were inferred by researchers. Measures examining socially desirable responding were included in Studies 1 and 3, but not in Study 2 due to the number of measures adopted. It is noteworthy that socially desirable responding was not related to aggression motivation or inhibition when examined. This suggested that the reliability of prisoners' self-report was not significantly hindered by this bias.

Prisoners participated in these studies voluntarily, which may have inadvertently contributed to a form of selection bias in this research. The prisoners who participated could reflect a subgroup of the more compliant, motivated or willing and who differed from the wider prison population. It is contrary to ethical principles to force anyone's engagement in applied research without his or her informed consent. Attempts were made to adjust for such selection biases by providing the opportunity for all prisoners on prison wings to participate and to ensure individuals with reading or writing difficulties could take part if they so wished. Nonetheless, caution is recommended with regard to the generalisation of these results to other offending groups without their further study.

A limitation of Studies 2 and 3 (Chapters 8 and 9) was that the measures adopted (i.e. ADHQ, ANBS, AIQ) were purposefully designed for this project. This was due to the lack of other published and validated measures available to examine key variables among detained adult prisoners. Details relating to the reliability coefficients for each measure were reported in the relevant Chapters. Across all new measures used only a few scales had lower reliability estimates, which were managed either by their exclusion or through their analysis, interpretation, and inclusion with caution. Further reliability and validity analysis beyond the current research is needed to specify fully their utility to the literature. Related to this, limitations in terms of the marginal statistical power achieved for one analysis undertaken in Study 2 (see Chapter 8) must be acknowledged. Caution is therefore recommended in the interpretation of these findings until this further research with larger sample sizes is conducted.

With regard to the confirmatory factor analyses undertaken across studies, modification indices (MI) were used to assist decision-making in trying to achieve good model fit. Examination of MIs allows identification of items that limit good fit so that they can be

address accordingly. However, excessive use of this approach is criticised for contributing to applied models that are tailored to the individual data set rather than reflecting a more generalised model (Byrne, 2001). Caution was exercised as to the number of occasions MI were utilised and models were adjusted in order to avoid excessive trimming of models.

In terms of aggression motivation and inhibition another limitation was that prisoners were instructed to focus on their most recent incident/s of aggression and non-aggression when completing the relevant measures (i.e. AMQ and AIQ). Thus, it is possible that the results found were related to individual incidents of aggression rather than reflective of prisoners' broader aggression use. As the findings in relation to motivation and inhibition were related to other more stable concepts such as personality or attachment, a potential limitation was that motivations were not examined across multiple situations. Future research could inform this issue by assessing motivation and inhibition alongside other variables of interest longitudinally using a within-subjects methodology.

A final limitation was the methodology utilised in relation to the grouping of prisoners (as either reactive, proactive or mixed, and as having a history of violence or non-violence) in these studies. There has already been discussion of the limitations of self-report in terms of biased responding in the first paragraphs of this section, which will not be repeated unnecessarily. In addition to this, the use of offence type (i.e. violent versus non-violent) as a grouping variable is also limited given that many criminal offences are reported, investigated or sanctioned. The reliability of any research study utilising offence-type as a grouping variable is limited, as any prisoner classified as having a non-violent history could have engaged in violence, which was not dealt with as such.

10.4 Directions for future research

The findings of this research suggest that motivation should be considered in terms of a three-component model (i.e. *pleasure, protection and positive social outcome*) and inhibition as four-factor structure (i.e. *empathy and consequence evaluation, lack of success and need to protect self, traits and beliefs unsupportive of aggression, and emotional control*). Further larger scale studies to examine whether these distinctions extend to other forensic groups such as adolescents or female samples and to other populations should be conducted. This would add to the validity and utility of these distinctions. Further development and refinement of the self-report measures such as the AMQ and AIQ should be examined. Use of alternative

methodologies to self-report measures, such as structured interviews and/or functional analyses (Roscoe, Kindle & Pence, 2010), towards this objective would also be recommended.

In terms of developmental factors, this project highlighted the limitations of existing pathways models of aggression (i.e. parallel and sequential). The idea of a simultaneous development pathway was instead proposed. Future research confirming or disproving the contentions made by this suggested pathway to aggression is recommended. The thesis indicated how some factors and experiences could be more specific to aggression as opposed to general delinquency. Thus their separation would be advantageous in any future that attempts to examine developmental variables and aggression. Future research that explores whether any developmental factors or life experiences contribute to aggression inhibition is also recommended. This would be to establish and add evidence to the contentions made by the AIM-AM as described earlier.

In addition to further examination of the developmental factors related to aggression motivation and inhibition, the role of underlying cognitions should also be subjected to additional research. The findings of this research suggest that beliefs and both negative and positive schema, have a role in aggression and non-aggression more generally. Further studies to refine their assessment and understanding in relation to specific motivations and inhibitions should be conducted. Research could initially compare whether the results of this research are replicated among other samples, as it is plausible that negative and positive schemata have a complex association with aggression, being either direct or indirect (via other factors) influences. Incorporation of other empirically-related factors, such as consideration of contextual triggers or schema-coping styles, alongside their consideration more generally, is also warranted.

Future research examining the association between affect and aggression motivation and inhibition is recommended. Consideration of the role of other basic emotions, such as shame, sadness or jealousy would be useful in increasing our insight into the role of affect in aggression motivation. This requirement extends to emotion regulation strategies, as the current project focused on two strategies out of a range of other possibilities, as indicated by the Modal Model of Emotion Regulation (Gross, 2014).

In addition, it is recommended that future research should continue to give attention to and

improve our understanding of the role of personality in aggression and non-aggression. This would be to explore whether the associations found in this research are replicated in different other populations. It would also investigate the role of positive rather than merely maladaptive traits, as because positive personality traits were found as important in structural models of prisoners' personalities (Ireland & Ireland, 2011), yet their association with aggression and non-aggression remains unexplained.

10.5 Practice implications from the research

There are several practice implications given the broad findings and conclusions of this research. It would be difficult to fully credit all these here given the range of possible considerations and the complexity of clinical work with prisoners. Instead, practice implications will be considered in terms of three overarching themes.

Firstly, it would be important that practitioners consider aggression motivation and inhibition beyond narrowed and limited distinctions. For instance, the proactive versus reactive distinction is often utilised in forensic services to inform clinical decision-making in relation to the assessment, treatment and management of offenders who display habitual aggression and violent offending (Hollin & Palmer, 2006). This research established that alternative and broader distinctions for aggressive motivation (i.e. *protection, pleasure and positive social outcomes*) and inhibition (i.e. *lack of success and need for self-protection, traits and beliefs unsupportive of aggression, emotional control, and empathy and consequence evaluation*) exist. Their practice application could extend into their consideration and incorporation as part of psychological risk and need assessments, in the planning and provision of need driven interventions to reduce aggression, and in the wider case management of prisoners who display habitual aggressive behaviours. This would be consistent with calls for psychological approaches towards the management of aggression to focus more on the core underlying mechanisms needed to evoke behavioural change (Ireland, 2009).

Secondly, use of the AIM-AM as a research informed model could have valuable practice implications. For instance, in case formulation practitioners hypothesize the predisposing, precipitating, perpetuating and protective influences of a person's interpersonal, emotional and behavioural presentation. Formulation is regarded as an essential skill needed by professionals working in applied practice (Sturmeay & McMurrin, 2011). Given the AIM-AM is an integrated model drawing together factors most relevant to prisoners' aggression from

the developmental, cognitive, personality and emotion regulation literatures, it has important practice connotations to informing practice with individuals, groups or organisations. When used within case formulation as indicated it has value in bridging the gap between theory and practice, such as through identifying individual circumstances related to instances of aggression (Ireland, 2009).

Thirdly, as part of this research several new self-report measures were created for the evaluation of conceptual factors such as developmental experiences, aggression motivations and inhibitions, and aggressive cognitions. These were created due to the absence of suitable tools available in the literature for either researchers or practitioners to utilise. Measure development was not, however, the central focus of this research project. Nonetheless if subjected to further psychometric testing and refinement with regard to their reliability and validity, these self-report measures could be useful tools for practitioners to compliment existing approaches (i.e. behavioural observations or interview). As gathering information most relevant to aggression is described as the cornerstone of clinical practice in working with prisoners at risk of aggression this is an important implication (Ireland, 2009).

10.6 Final conclusion

This PhD thesis set out to explore the underlying characteristics and components of aggression motivation and inhibition in prisoners. This was achieved through studies where existing and new measures examined several neglected areas of aggression research, which included consideration of aggression motivation and inhibition, and their association with developmental, cognitive, affect regulation and personality factors. This research showed that many existing considerations in these areas were limited in terms of their value and applicability to prisoner populations. The emerging components of motivation and inhibition coupled with their associated underlying characteristics, better captured the multifaceted nature of aggression among the prisoners sampled. This research culminated in the development of the AIM-AM, which it is hoped provides the basis for continued research and guidance in clinical practice towards the attenuation of aggression among prisoners.

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Appendix 1

Documentation and measures used in Study 1

I am currently involved in a research project looking at people's motivation behind their behaviour. This research is being completed as part of a qualification at the University of Central Lancashire. Everybody on your wing is being asked to participate in this study. The project aims to: -

- (1) Examine different motivators for aggression;
- (2) See if these motivations are linked to types of behaviours;
- (3) Test whether a questionnaire developed to assess aggression motivation is a useful measure, and
- (4) Examine the emotion of anger in behaviour.

You will be asked to complete a questionnaire which covers each of these areas. This should take you a total of between 30 and 45 minutes to complete.

The questionnaires are completely anonymous – your name or number will not be recorded on the form. If you have any problems reading or writing please just ask for help. If you do have any questions about the research (e.g. queries with particular questions) please feel free to speak to the researcher.

Please answer all questions as honestly as possible and place your completed questionnaire in the envelope provided.

If any of these questionnaires cause you concern or upset you in anyway, I suggest that you speak to your personal officer in the first instance. Please remember that you do not have to engage in this research, it is entirely voluntary.

You also have the right to withdraw from the research; you don't have to complete the questionnaires. Please be aware however, that once you have handed your questionnaire back completed, we will not be able to take you out of the research. This is because the questionnaires are anonymous.

A final report will be produced for the prison which will summarise the findings. This report may also be published in a peer review journal. In all instances, you will not be identified in anyway and the reports will be based on group responses only.

Contact details for the researcher:
Mr Ioan Ohlsson, Psychology Department, HMP X.

Contact details of research supervisor:
Professor Jane L. Ireland, University of Central Lancashire, School of Psychology.

Questionnaire 1

This questionnaire is designed to gather some information about you. Please complete all sections.

1. Age

What is your current age?

- 0) 18 – 29 1) 30 – 41 2) 42 – 53 3) 54 +

2. Criminal history

What is your current index/main offence?

.....
.....
.....

How many previous criminal convictions to do you have?

- 0) Under 5 1) Between 5 – 10 2) Over 10

How many years did you receive for your current offence?

- 0) Under 5 1) Between 5 – 10 2) Over 10

Aggression Motivation Questionnaire © [AMQ: Ireland, 2007]

(Access to this measure should be requested from jlireland1@uclan.ac.uk)

The following presents a list of statements relating to views about aggression. We want you to think about how each statement relates to you when you have used aggression either currently or in the past.

Read each statement and indicate how much you agree with it using the following scale;

1 = totally disagree

2 = not agree that much

3 = undecided

4 = agree quite a bit

5 = totally agree

When I have been aggressive it is USUALLY because.....

- | | | | | | | |
|-----|---|---|---|---|---|---|
| 1. | I believed it would have a positive outcome for me | 1 | 2 | 3 | 4 | 5 |
| 2. | I am just behaving in a way that has worked for me in the past | 1 | 2 | 3 | 4 | 5 |
| 3. | I have used it to protect my self-esteem | 1 | 2 | 3 | 4 | 5 |
| 4. | I have used it to make others do what I want | 1 | 2 | 3 | 4 | 5 |
| 5. | I have used it to release anger, frustration or tension | 1 | 2 | 3 | 4 | 5 |
| 6. | It has been a way of making sure others avoid me | 1 | 2 | 3 | 4 | 5 |
| 7. | It has been a way I can obtain items from others | 1 | 2 | 3 | 4 | 5 |
| 8. | It has helped me to increase my status among my peers | 1 | 2 | 3 | 4 | 5 |
| 9. | I have just been behaving in a way that others have told me to | 1 | 2 | 3 | 4 | 5 |
| 10. | I enjoy seeing other people suffer | 1 | 2 | 3 | 4 | 5 |
| 11. | The environment I am in stops me from being non-aggressive | 1 | 2 | 3 | 4 | 5 |
| 12. | I wanted to punish others who were 'getting at me' | 1 | 2 | 3 | 4 | 5 |
| 13. | I wanted to maintain the status I already have | 1 | 2 | 3 | 4 | 5 |
| 14. | I wanted to stop feeling alone | 1 | 2 | 3 | 4 | 5 |
| 15. | I believe the world is a dangerous place and others will try to harm me | 1 | 2 | 3 | 4 | 5 |

- | | | | | | |
|---|---|---|---|---|---|
| 16. My personality makes it more likely that I will be aggressive | 1 | 2 | 3 | 4 | 5 |
| 17. I wanted to be disruptive | 1 | 2 | 3 | 4 | 5 |
| 18. I thought there would be few or no negative consequences | 1 | 2 | 3 | 4 | 5 |
| 19. I have had to defend myself | 1 | 2 | 3 | 4 | 5 |

MAI: Sigel 1986

Instructions: Everybody gets angry from time to time. A number of statements that people have used to describe the times when they have been angry are included below. Read each statement and circle the number to the right of the statement that best describes you. There are no right or wrong answers.

If the statement is **completely undescriptive** of you, circle a 1.

If the statement is **mostly undescriptive** of you, circle a 2.

If the statement is **partly undescriptive and partly descriptive** of you, circle a 3.

If the statement is **mostly descriptive** of you, circle a 4.

If the statement is **completely descriptive** of you, circle a 5.

- | | | | | | |
|---|---|---|---|---|---|
| 1. I tend to get angry more frequently than most people. | 1 | 2 | 3 | 4 | 5 |
| 2. Other people seem to angrier than I do in similar circumstances. | 1 | 2 | 3 | 4 | 5 |
| 3. I harbour grudges that I don't tell anybody about. | 1 | 2 | 3 | 4 | 5 |
| 4. I try to get even when I'm angry with someone. | 1 | 2 | 3 | 4 | 5 |
| 5. I am secretly quite critical of others. | 1 | 2 | 3 | 4 | 5 |

Full version can be accessed from:-

Siegel, J. M. (1986). The multidimensional anger inventory. *Journal of personality and social psychology*, 51, 191-200.

Offending Motivation Questionnaire (*Gudjonsson & Sigurdson, 2004*)

Please answer the questions below in relation to your **INDEX** offence. Try to answer all the questions on the seven-point scale ranging between **Not at all** (1 or 2), **Somewhat** (3 - 5) and **Very much** (6 or 7).

How large proportion were the following reasons in you offence?	Not at all		Somewhat			Very much	
1. To show how brave and daring I was	1	2	3	4	5	6	7
2. In hope of financial gain	1	2	3	4	5	6	7
3. To please my peer(s)	1	2	3	4	5	6	7
4. Gave in to pressure from peer(s)	1	2	3	4	5	6	7
5. To take revenge on somebody	1	2	3	4	5	6	7

Full version can be accessed from:-

Gudjonsson, G.H., & Sigurdsson, J. F., (2004). Motivation for offending and personality. *Legal and Criminological Psychology*, 9, 69 – 81.

Debrief Sheet

Thank you for completing the questionnaires on aggression, anger, and motivation. Below is some further information about the research.

What is this research looking at?

Two different types of aggression have been identified, called proactive and reactive. Someone who is characterised by proactive aggression uses aggression to gain something. The other type, reactive aggression, is used in a situation where they feel anger or frustration. With this in mind, the project has four main aims:-

- (1) To examine different motivators for aggression;
- (2) See if these motivations are linked to types of behaviours;
- (3) Test whether a questionnaire developed to assess aggression motivation is a useful measure, and
- (4) Examine the emotion of anger in aggressive behaviour.

Why was I given questionnaires?

Nobody was SELECTED for this research. Everybody on each wing was asked if they would like to be involved.

What are the results likely to be?

What would be expected from this study is that the questionnaire developed is useful for measuring people's motivation. It is expected that people's motivation is different for both reactive and proactive types. It is also expected that the emotion of anger is linked to more reactive type people.

What happens next?

When all the questionnaires are completed a report will be produced for the prison which will summarise the findings. This report **will not** identify you in anyway. The report will look at group responses only.

How do I get more information, if I need it?

If you would like further information about this research please contact me in the Psychology Department at HMP XX.

Thank you again for your time and effort in taking part,

Ioan Ohlsson

Appendix 2

Documentation and measures used in Study 2

I am currently involved in a research project at the University of Central Lancashire looking at people's motivation and their behaviour. The project aims to: -

- (1) Examine the different motives for aggression;
- (2) To see if these motivations are linked to a person life history;
- (3) To explore whether these motives are associated with people's relationship style
- (4) Examine people's thinking styles and aggression.

You will be asked to complete a questionnaire which covers each of these areas. This should take you a total of between 30 and 45 minutes to complete. Everybody on your wing is being asked to participate in this study.

The questionnaires are completely anonymous – your name or number will not be recorded on the form. If you have any problems reading or writing please just ask for help. If you do have any questions about the research (e.g. queries with particular questions) please feel free to speak to the researcher.

Please answer all questions as honestly as possible and place your completed questionnaire in the envelope provided.

If any of these questionnaires cause you concern or upset you in anyway, I suggest that you speak to your personal officer or wing *Listeners* in the first instance. Please remember that you do not have to engage in this research, it is entirely voluntary. If you should find the questionnaires upsetting please feel free not to complete them.

You also have the right to withdraw from the research; you don't have to complete the questionnaires. Please be aware however, that once you have handed your questionnaire back completed, we will not be able to take you out of the research. This is because the questionnaires are anonymous.

A final report will be produced for the prison which will summarise the findings but this will not identify you in anyway. The report will look at group responses only.

Contact details for the researcher:
Mr Ioan Ohlsson, Psychology Department, HMP X.

Contact details of research supervisor:
Professor Jane L. Ireland, University of Central Lancashire, School of Psychology.

Aggression Developmental History Questionnaire © (ADHQ: Ohlsson & Ireland, 2010)

(Access to this measure should be requested from jlireland1@uclan.ac.uk)

The purpose of this questionnaire is to gather some information about your life experiences and background. Please complete all sections.

1. Age

What is your current age?

2. Education

- What age were you when you left school?
- Please identify from the list below the highest level of qualification you have obtained, please circle one of the following.

None	NVQ	A-levels	Degree
City and Guilds	GCSE/O-levels	HNC/BTEC	Higher Degree

3. Occupations

Please identify your occupation/s, your father's and your mother's occupation/s. Use predominant if several.

- What was your occupation
- What was your father's occupation.....
- What was your mother's occupation

4. Parenting practises

How would you describe the amount of contact you had with your parent/s or guardian/s when you were younger?

- 0) Never
- 1) A little
- 2) A lot

How would you describe the rules set by your parent/s or guardian/s when you were younger?

- 0) They never set any rules
- 1) They were not as strict as other children that I knew
- 2) They were stricter than other children that I knew

How would you describe the amount of communication you had with your parent/s or guardian/s when you were younger?

- 0) Never
- 1) A little
- 2) A lot

When you were younger how much of the following did your parents/guardians give you:-

- Encouragement
 - 0) None
 - 1) A little
 - 2) A lot
- Guidance/Advice
 - 0) None
 - 1) A little
 - 2) A lot
- Support (including financial, emotional, physical)
 - 0) None
 - 1) A little
 - 2) A lot
- Stability/routine
 - 1) None
 - 1) A little
 - 2) A lot
- Praise
 - 1) None
 - 1) A little
 - 2) A lot

How would you describe the amount of communication you had with your parent/s or guardian/s when you were younger?

- 1) Never
- 2) A little
- 3) A lot

When you were younger did your parents/guardians ever:-

- Smack you with an open hand or slipper?
0) No never 1) Once or Twice 2) Often
- Punch or thump you?
0) No never 1) Once or Twice 2) Often
- Hit you with an object, such as a stick or belt?
0) No never 1) Once or Twice 2) Often

5. Childhood

When growing up who lived in your household? Please circle all that apply.

- 0) Mother 1) Father 2) Stepfather 3) Stepmother
- 4) Adoptive mother/father 5) Sister/s 6) Brother/s
- 7) Stepbrother/s 8) Stepsister/s 9) Grandparents
- 10) Other.....

How often did you feel **happy** as a child? Please circle one from the list below that you think most applies to you.

- 0) None
- 1) Hardly ever
- 2) Some of the time
- 3) Most of the time
- 4) All of the time

How often did you feel **sad** as a child? Please circle one from the list below that you think most applies to you.

- 0) None
- 1) Hardly ever
- 2) Some of the time
- 3) Most of the time
- 4) All of the time

As a child did you suffer from:-

- | | |
|----------------------|--------------|
| 0) Physical abuse | 0) Yes 1) No |
| 1) Sexual abuse | 0) Yes 1) No |
| 2) Emotional abuse | 0) Yes 1) No |
| 3) Physical neglect | 0) Yes 1) No |
| 4) Emotional neglect | 0) Yes 1) No |

How would you describe the friendships you had with other children when you were a child? Please circle one of the following

- 0) More of a loner
- 1) Had a few friends
- 2) Had as many friends as other children
- 3) Had more friends than other children

Please circle if you did the following before the age of 12:-

- | | |
|------------------------------|--------------|
| 1) Fighting | 0) Yes 1) No |
| 2) Bully other children | 0) Yes 1) No |
| 3) Act aggressively | 0) Yes 1) No |
| 4) Commit a crime with peers | 0) Yes 1) No |
| 5) Drink alcohol/take drugs | 0) Yes 1) No |
| 6) Steal things | 0) Yes 1) No |
| 7) Get expelled from school | 0) Yes 1) No |
| 8) Set fire to things | 0) Yes 1) No |
| 9) Hurt animals | 0) Yes 1) No |
| 10) Destroy property | 0) Yes 1) No |

6. Criminal history

- How many previous criminal convictions do you have?
1) Under 5 1) Between 5 – 10 2) Over 10

- How many previous prison sentences have you served?
0) Under 5 1) Between 5 – 10 2) Over 10

- How many years did you receive for your current offence?
1) Under 5 1) Between 5 – 10 2) Over 10

- Are you currently serving a sentence for a violent offence?
0) Yes 1) No

- Have you ever been convicted of a violent offence?
0) Yes 1) No

Adult Aggression Normative Belief Scale © (ANBS: Ohlsson & Ireland, 2010)

(Access to this measure should be requested from jlireland1@uclan.ac.uk)

Using the following scale:

0 = not at all 1 = not really 2 = Somewhat 3= Very likely 4 = definitely

Of the following behaviours, which do you think OTHER PRISONERS would expect you to do:-

1. To be aggressive towards other prisoners	0	1	2	3	4
2. To hit someone if they hit you first	0	1	2	3	4
3. To get into a physical fight to show aggression	0	1	2	3	4
4. To be aggressive towards someone who deserves it.	0	1	2	3	4
5. To be aggressive towards staff	0	1	2	3	4
6. To be aggressive when angry	0	1	2	3	4
7. To put on “a front” and pretend to be tougher than you are	0	1	2	3	4
8. To be aggressive when someone is aggressive towards me	0	1	2	3	4
9. To be aggressive to get what you want from others	0	1	2	3	4
10. To be aggressive to stop others walking all over you	0	1	2	3	4

The Relationship Questionnaire (RQ) Bartholomew and Horowitz (1991)

Following are four general relationship styles that people often report. Place a cross next to the letter corresponding to the style that best describes you when you were a child or is closest to the way you were then.

____ A. It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me.

____ B. I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others.

____ C. I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them.

____ D. I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.

Now please rate each of the relationship styles above to indicate how well or poorly each description corresponds to your general relationship style.

Style A

It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me.

1	2	3	4	5	6	7
Disagree						Agree
Strongly			Unsure			Strongly

Style B

I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others.

1	2	3	4	5	6	7
Disagree						Agree
Strongly			Unsure			Strongly

Style C

I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them.

1	2	3	4	5	6	7
Disagree Strongly			Unsure			Agree Strongly

Style D

I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.

1	2	3	4	5	6	7
Disagree Strongly			Unsure			Agree Strongly

SPANNA-2 (Wilks-Riley, 2010; Wilks-Riley & Ireland, 2012)

This questionnaire looks at beliefs that people can have about themselves and others.

Please read each statement carefully and answer how you have thought and felt **recently**. You have a choice of answers so please circle how much you agree or disagree with each statement using the following scale:

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree			
	1	2	3	4	5			
1				1	2	3	4	5
2				1	2	3	4	5
3				1	2	3	4	5
4				1	2	3	4	5
5				1	2	3	4	5
6				1	2	3	4	5

Full version can be accessed from:-

Wilks-Riley, F., & Ireland, J. L. (2012). Cognition and psychopathy: identifying negative and positive schemas in general and forensic samples. *Journal of Forensic Psychiatry & Psychology*, 23, 466-484.

Aggression Motivation Questionnaire © [AMQ: Ireland, 2007]

(Access to this measure should be requested from jlireland1@uclan.ac.uk)

The following presents a list of statements relating to views about aggression. Think about how each statement relates to you when you have used aggression either currently or in the past.

Read each statement and indicate how much you agree with it using the following scale;

1 = totally disagree

2 = not agree that much

3 = undecided

4 = agree quite a bit

5 = totally agree

When I have been aggressive it is USUALLY because.....

- | | | | | | | |
|----|--|---|---|---|---|---|
| 1. | I believed it would have a positive outcome for me | 1 | 2 | 3 | 4 | 5 |
| 2. | I am just behaving in a way that has worked for me in the past | 1 | 2 | 3 | 4 | 5 |
| 3. | I have used it to protect my self-esteem | 1 | 2 | 3 | 4 | 5 |
| 4. | I have used it to make others do what I want | 1 | 2 | 3 | 4 | 5 |
| 5. | I have used it to release anger, frustration or tension | 1 | 2 | 3 | 4 | 5 |

Full version can be accessed from Appendix 1.

Debrief Sheet

Thank you for completing the questionnaires on aggression, your life history, and beliefs. Below is some further information about the research.

What is this research looking at?

Two different types of aggression have been identified, called proactive and reactive. Someone who is characterised by proactive aggression uses aggression to gain something. The other type, reactive aggression, is used in a situation where they feel anger or frustration. With this in mind, the project has four main aims:-

- (1) Examine the different motives for aggression;
- (2) To see if these motivations are linked to a person life history;
- (3) To explore whether aggression is associated with people's relationship style
- (4) Examine people's thinking styles and aggression.

Why was I given questionnaires?

Nobody was SELECTED for this research. Everybody on each wing was asked if they would like to be involved.

What are the results likely to be?

It is expected that people's motivation is different for both reactive and proactive aggression types. It is also expected that differing motives for aggression develop from different life experiences. Finally, it is expected people's life experiences affect their relationship and thinking styles.

What happens next?

When all the questionnaires are completed a report will be produced for the prison which will summarise the findings. This report **will not** identify you in anyway. The report will look at group responses only. A copy of this report will also be sent to the British Psychological Society as part of my professional training.

How do I get more information, if I need it?

If you would like further information about this research please contact me in the Psychology Department at HMP X.

Thanks again for your time and effort in taking part,

Ioan Ohlsson

Appendix 3

Additional results from Study 2

Table 1: Descriptive statistics for original and imputed data for all variables

Variable	Original data		Imputed data	
	Mean	SD	Mean	SD
Protection (AMQ 1)	32.1	13.2	33.5	13.9
Pos social outcome (AMQ 2)	38.8	10.7	39.8	10.2
Pleasure (AMQ 3)	27.2	9.7	27.2	9.6
Positive parenting (ADHQ)	6.5	.22	6.5	.22
Negative parenting (ADHQ)	3.6	.15	3.7	.15
Pos. child experience (ADHQ)	4.2	.14	4.1	.11
Neg. child experience (ADHQ)	5.6	.09	5.6	.09
Prob. child behaviour (ADHQ)	6.8	.22	7.0	.21
Child secure (RQ)	3.6	.14	3.6	.14
Child fearful-avoidant (RQ)	3.6	.17	3.8	.15
Child pre-occupied (RQ)	3.1	.13	3.1	.13
Child dismissive-avoidant (RQ)	4.0	.14	4.0	.14
Adult secure (RQ)	3.8	.15	3.9	.14
Adult fearful-avoidant (RQ)	3.6	.14	3.6	.14
Adult pre-occupied (RQ)	3.2	.18	3.1	.13
Adult dismissive-avoidant (RQ)	4.2	.15	4.2	.15
Total normative beliefs (ANBS)	13.3	.67	13.3	.67
Happy/Sociable (SPANAS)	10.6	.24	10.6	.24

Hardworking (SPANANA)	8.8	.24	8.8	.24
Calm/Controlled (SPANANA)	12.0	.31	11.1	.26
Caring (SPANANA)	9.0	.23	9.0	.23
Easy going (SPANANA)	11.2	.25	11.2	.25
Worthwhile (SPANANA)	10.1	.25	10.1	.25
Abandoned (SPANANA)	12.7	.34	12.7	.34
Mistrust self/Distrust others (SPANANA)	14.8	.31	14.8	.31
Worthless (SPANANA)	11.2	.25	10.4	.30
Uncaring others (SPANANA)	12.7	.21	13.0	.27
Abusive others (SPANANA)	13.4	.26	13.4	.26
Intolerant others (SPANANA)	13.2	.28	13.2	.28
Negative Affect (SPANANA)	11.2	.31	11.9	.22

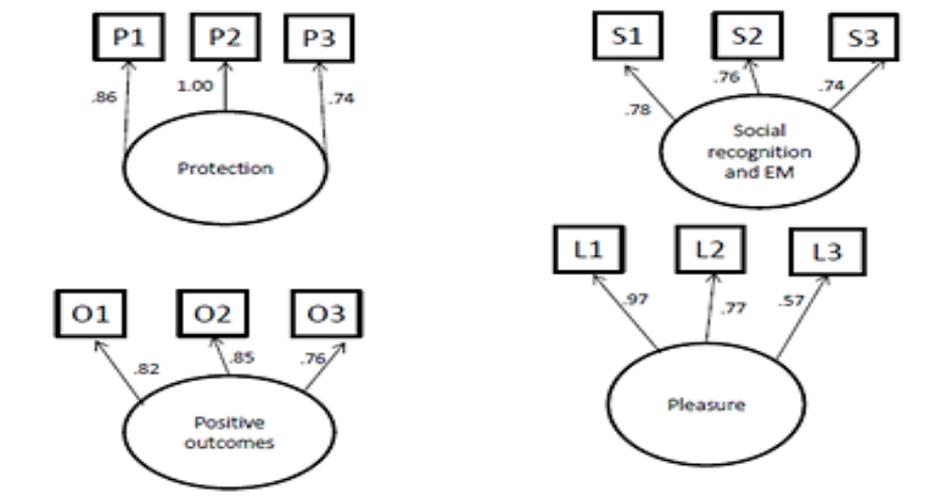
Table 2. Make-up of item parcels that were used for confirmatory factor analysis of the AMQ

	Item No.	Item-to-total correlation	Item parcel
Protection motive			
I have had to defend myself	19	.79	P1
I have wanted to protect myself	37	.76	P1
I was provoked by another	39	.75	P1
I was trying to protect others	34	.71	P1
I wanted to let others know I am not an easy target	32	.70	P1
I was feeling fearful/afraid	25	.65	P2
I have used it to release anger, frustration or tension	5	.63	P2

I was reacting to another person making fun of me	22	.58	P2
I wanted to assault someone before they assaulted me	38	.56	P2
I wanted revenge	21	.56	P2
I have used it to avoid doing something I did not want to	29	.47	P3
I believe the world is a dangerous place and others will try to harm me	15	.44	P3
I have believed that others are 'out to get me'	43	.43	P3
	Item No.	Item-to-total correlation	Item parcel
Social recognition and emotional management aggression motive			
I wanted to gain a reputation	28	.65	S1
I wanted to impress groups of peers and be accepted by them	35	.61	S1
I wanted to release feelings of guilt or shame	24	.60	S1
I wanted to 'prove' myself to my peers	26	.60	S1
I believe the victim was going to be an 'easy target'	27	.57	S2
I wanted to release feelings of jealousy	23	.54	S2
I wanted to stop feeling alone	14	.52	S2
I was trying to cope with my difficulties	33	.50	S2
I want to stop others from gaining status	42	.48	S3
I wanted to maintain the status I already have	13	.48	S3
I have wanted to let others know that I am angry or frustrated	40	.42	S3
I thought there would be few or no negative consequences	18	.36	S3
	Item No.	Item-to-total correlation	Item parcel
Positive outcome motive			

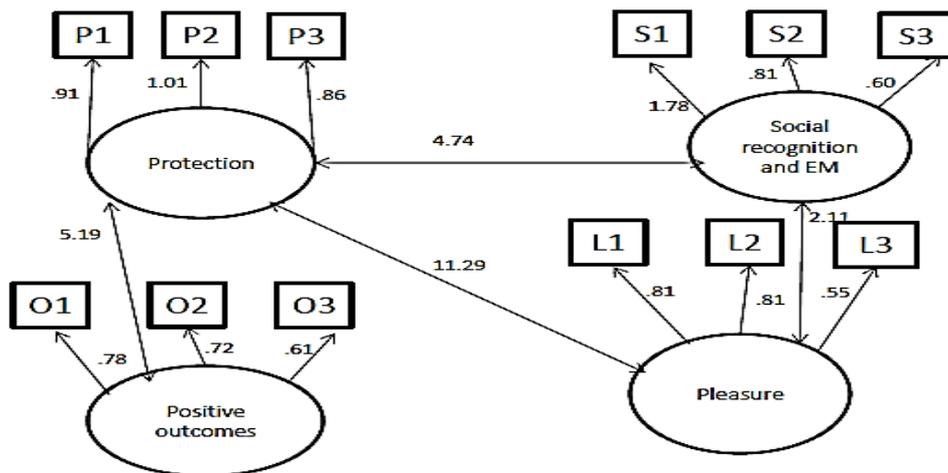
I believed it would have a positive outcome for me	1	.74	O1
I am just believing in a way that has worked for me in the past	2	.71	O1
It has helped me to increase my status among my peers	8	.69	O1
I have used it to make others do what I want	4	.67	O2
I have used it to protect my self-esteem	3	.66	O2
I wanted to win the argument or conflict	41	.65	O2
It has been a way of obtaining items from others	7	.64	O3
I wanted to dominate and control others	36	.60	O3
It has been a way of making sure others avoid me	6	.47	O3
	Item No.	Item-to-total correlation	Item parcel
Pleasure aggression motive			
I have been fantasising about using aggression	46	.75	L1
I have thoughts telling me to hurt others that won't go away	45	.73	L1
I enjoy seeing other people suffer	10	.71	L1
I have been responding to a mental illness	30	.67	L1
My personality makes it more likely that I will be aggressive	16	.65	L2
It is the only way I have of managing conflict with others	31	.64	L2
I wanted to punish others who were 'getting at me'	12	.63	L2
I wanted to humiliate the victim	44	.63	L2
I have just been behaving in a way that others have told me to	9	.53	L3
I wanted to be disruptive	17	.52	L3
I wanted some fun and enjoyment	20	.42	L3

Figure 8.1 CFA output showing model fit for the four-factor model of aggression motivation; $\chi^2(59)=114.32, p<.001; GFI=.56; CFI=.42; RMSEA=.15; n = 210$.



Improvement analyses were undertaken building on the model outlined in Figure 8.1. A review of Modification Indices (MIs) and Item covariances (CIs) was conducted with covariances between factors added. This revised model, shown in figure 8.2., was a slight improvement yet fit indices remained poor, $\chi^2(59)=87.62, p<.001; GFI=.64; CFI=.57; RMSEA=.12; n = 210$.

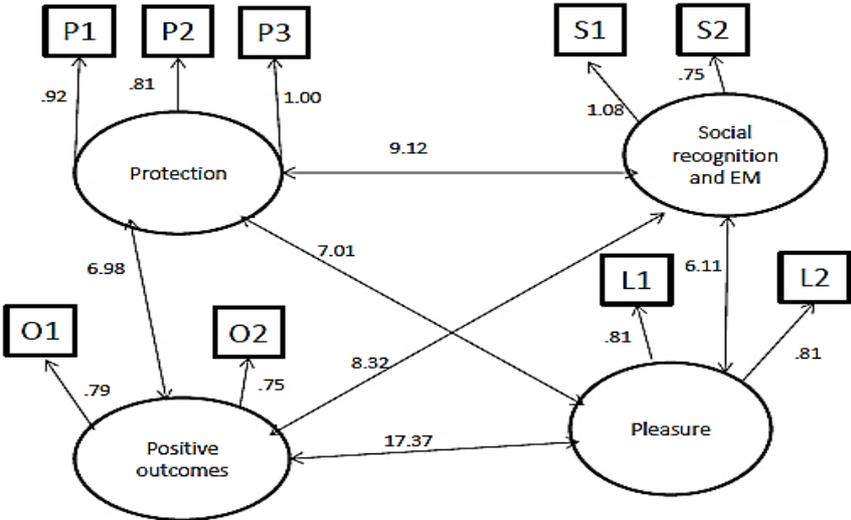
Figure 8.2: CFA output showing model fit for the four-factor model of aggression motivation; $\chi^2(40)=87.62, p<.001; GFI=.64; CFI=.57; RMSEA=.12; n = 210$.



The CFA was re-run, this time adding further covariances and removing low loading item parcels. However, as indicated in Figure 8.3 limited improvement in the fit over the previous model was found; $\chi^2(40)=58.31, p<.01; GFI=.71; CFI=.63; RMSEA=.11; n = 210$. Excessive trimming of the model was not employed, so as to avoid the development of a model to only

fit this particular set of data (Tabachnick & Fidell, 2007). Therefore a four-factor model of aggression motivation for this particular data was not accepted.

Figure 8.3 CFA output showing model fit for the four-factor model of aggression motivation; $\chi^2(40)=87.62, p<.001$; $GFI=.64$; $CFI=.57$; $RMSEA=.12$; $n = 210$.



Appendix 4

Documentation and measures used in Study 3

I am currently involved in a PhD research project at the University of Central Lancashire looking at people's motivation and their behaviour. The project aims to: -

- (1) Examine the different motives for aggression.
- (2) See if these motives are linked to people's emotions.
- (3) Explore whether these motives are linked with people's personality
- (4) Examine the reasons why people decide not to use aggression.

You will be asked to complete a questionnaire which covers each of these areas. They should take you a total of between 30 and 45 minutes to complete. Everybody on your wing is being asked to participate in this study.

The questionnaires are completely anonymous – your name or number will not be recorded on the form. If you have any problems reading or writing please just ask for help. If you do have any questions about the research (e.g. queries with particular questions) please feel free to speak to the researcher.

Please answer all questions as honestly as possible and place your completed questionnaire in the envelope provided.

This study is for research purposes only. Your participation will have no effect on your OASys assessment, sentence plan, or any treatment that you are currently engaged in or may complete in the future. Please remember that you do not have to engage in this research, it is entirely voluntary.

You also have the right to withdraw from the research; you don't have to complete the questionnaires. Please be aware however, that once you have handed your questionnaire back completed, we will not be able to take you out of the research. This is because the questionnaires are anonymous.

A final report will be produced for the prison which will summarise the findings but this will not identify you in anyway. The report will look at group responses only. This report may also be published in a peer review journal. In all instances, you will not be identified in anyway and the reports will be based on group responses only.

Contact details for the researcher:

Mr Ioan Ohlsson, University of Central Lancashire and HMP X.

Contact details of research supervisor:

Professor Jane L. Ireland, University of Central Lancashire, School of Psychology.

Questionnaire 1

This questionnaire is designed to gather some information about you. Please complete all sections.

1. Age

What is your current age?

- 0) 18 – 29 1) 30 – 41 2) 42 – 53 3) 54 +

2. Criminal history

- How many previous criminal convictions do you have?
i) Under 5 ii) Between 5 – 10 iii) Over 10

- How many previous prison sentences have you served?
i) Under 5 ii) Between 5 – 10 iii) Over 10

- How many years did you receive for your current offence?
i) Under 5 ii) Between 5 – 10 iii) Over 10

- Have you ever been convicted of a violent offence?
0) Yes 1) No

Aggression Motivation Questionnaire © [AMQ: Ireland, 2007]

(Access to this measure should be requested from jlireland1@uclan.ac.uk)

This questionnaire looks at views about aggression. Think about a time when you have used aggression either recently or in the past. Please read each statement and indicate how much you agree with it using the following scale;

1 = totally disagree

2 = not agree that much

3 = undecided

4 = agree quite a bit

5 = totally agree

When I have been aggressive it is USUALLY because.....

- | | | | | | | |
|----|--|---|---|---|---|---|
| 1. | I believed it would have a positive outcome for me | 1 | 2 | 3 | 4 | 5 |
| 2. | I am just behaving in a way that has worked for me in the past | 1 | 2 | 3 | 4 | 5 |
| 3. | I have used it to protect my self-esteem | 1 | 2 | 3 | 4 | 5 |
| 4. | I have used it to make others do what I want | 1 | 2 | 3 | 4 | 5 |
| 5. | I have used it to release anger, frustration or tension | 1 | 2 | 3 | 4 | 5 |

Full version can be accessed from Appendix 1.

ERQ (Gross & John, 2003)

These next questions are about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. For each item, please answer using the following scale:

1-----2-----3-----4-----5-----6-----7
strongly neutral strongly
disagree agree

1. ____ When I want to feel more *positive* emotion (such as joy or amusement), I *change what I'm thinking about*.
2. ____ I keep my emotions to myself.
3. ____ When I want to feel less *negative* emotion (such as sadness or anger), I *change what I'm thinking about*.
4. ____ When I am feeling *positive* emotions, I am careful not to express them.

Full version can be accessed from:

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: implications for affect, relationships, and well-being. *Journal of personality and social psychology*, 85, 348-362.

IPDE-SQ© (Loranger, 1999)

The full version of the IPDE-SQ can be obtained from Ann Arbor Publishers. A selected sample of items to provided to illustrate its structure for this thesis only.

The purpose of this questionnaire is to learn what type of person you have been during the past 5 years. Please read and respond to each item.

When the answer is TRUE, circle the letter T. When the answer is FALSE circle the letter F.

If you are not sure of an answer, select the one (T for TRUE or F for FALSE) that is most likely to be correct.

1. I usually get fun and enjoyment out of life.	T/F
2. I trust people I know	T/F
3. I'm not fussy about details	T/F
4. I can't decide what kind of person I want to be	T/F
5. I show my feelings to everyone I see	T/F
6. I let other make my decision for me	T/F

AIQ© [Ohlsson & Ireland, 2011]

(Access to this measure should be requested from jlireland1@uclan.ac.uk)

A number of possible reasons for **NOT** being aggressive are presented below.

Thinking about **THE LAST TIME** when you **COULD** have been aggressive but chose not to, please read each statement and rate how it applied on a scale of 1 to 4 where:

- 1 = Not at all
- 2 = A little bit
- 3 = Quite a bit
- 4 = Definitely/extremely

I chose not to be aggressive on that occasion as

	<i>Not at all</i>		<i>Definitely</i>	
1. It would leave me feeling isolated or alone	1	2	3	4
2. I controlled my aggressive emotions	1	2	3	4
3. I was not feeling particularly angry	1	2	3	4
4. I did not want to be aggressive	1	2	3	4
5. A strong emotion (e.g. guilt or shame) stopped me	1	2	3	4
6. It is what I would usually do	1	2	3	4
7. Aggression is not permitted by my culture and/or religion	1	2	3	4
8. I was able to think of the negative consequences of my actions	1	2	3	4
9. I was able to deal with the situation/problem without aggression	1	2	3	4
10. I do not like seeing other people suffer	1	2	3	4
11. Where I was (e.g. where it took place) stopped me	1	2	3	4
12. I thought of a non-aggressive way of dealing with it	1	2	3	4
13. I would have lost respect from others	1	2	3	4
14. My friends/acquaintances would not approve of it	1	2	3	4
15. I believe that aggression solves nothing	1	2	3	4
16. My personality makes it less likely that I will be aggressive	1	2	3	4
17. I take no pleasure in harming others	1	2	3	4
18. There was no benefit to me in using aggression	1	2	3	4

I chose not to be aggressive on that occasion as

	<i>Not at all</i>		<i>Definitely</i>	
19. I had a lot to lose if I acted in that way	1	2	3	4
20. I wasn't provoked enough	1	2	3	4
21. I cared about the other person involved	1	2	3	4
22. I promised someone that I wouldn't be aggressive again	1	2	3	4
23. I was fearful or afraid in the situation	1	2	3	4
24. The other person was bigger and/or stronger than me	1	2	3	4
25. I don't like confrontation	1	2	3	4
26. I wanted to protect myself from harm	1	2	3	4
27. It is against my personal beliefs	1	2	3	4
28. I knew that I would have lost and come out worse	1	2	3	4
29. It is not in my 'nature' to be aggressive	1	2	3	4
30. I wanted to impress my peers by being non-aggressive	1	2	3	4
31. I just was not in the mood to be aggressive	1	2	3	4
32. The other person didn't deserve me to be aggressive	1	2	3	4
33. I have skills to deal with the situation non-aggressively	1	2	3	4
34. I could see the other person's point of view	1	2	3	4
35. I was in a positive frame of mine	1	2	3	4
36. The other person was hostile and I thought it may get worse	1	2	3	4
37. I was being closely observed by people in authority	1	2	3	4
38. I would rather avoid an argument	1	2	3	4
39. I challenged my aggressive thoughts effectively	1	2	3	4
40. I would have been punished if I was aggressive	1	2	3	4
41. I'm getting older and I no longer have urges to be aggressive	1	2	3	4
42. I wanted to show others that I have changed my ways	1	2	3	4
43. I was physically unwell	1	2	3	4

Any other reasons why you were not aggressive on this occasion?

Circle below the reasons why you COULD have been aggressive on this occasion:

I was being threatened with physical violence

The other person(s) was being physically aggressive towards me

The other person(s) was being verbally aggressive or abusive to me

I was being told what to do

I was being verbally threatened

I was being humiliated

I needed to escape from the situation

Someone I care about was being put at risk/threatened

I needed to stick up for someone who was being picked on

Debrief Sheet

Thank you for completing the questionnaires on aggression, your emotions, and personality. Below is some further information about the research.

What is this research looking at?

Different types of aggression have been identified, called *proactive* and *reactive*. Someone who uses proactive aggression does so to gain something. The other type, reactive aggression, is used in response to a situation where they feel anger or frustration. With this in mind, the project has four main aims:-

- (1) To examine the different motives for aggression;
- (2) To see if these motivations are linked to how people manage and express their emotions;
- (3) To explore whether their aggression is associated with their personality
- (4) To examine the reasons for not being aggressive.

Why was I given questionnaires?

Nobody was SELECTED for this research. Everybody on each wing was asked if they would like to be involved.

What are the results likely to be?

It is expected that people's motivation for aggression will be different for both reactive and proactive types. How people express and manage their emotions is also expected to differ. Finally, it is predicted that people's personality style will be linked with how they decide to or not to be aggressive.

What happens next?

When all the questionnaires are completed a report will be produced for the prison which will summarise the findings. This report **will not** identify you in anyway. The report will look at group responses only. A copy of this report will also be used as part of my qualification at the University of Central Lancashire.

How do I get more information, if I need it?

If you would like further information about this research please contact me in the Psychology Department at HMP X. Or, if you would like a summary of the study's results when completed please write to me at the address shown below. If any of these questionnaires have caused you concern or have upset you in anyway, I suggest that you seek support from your personal officer or wing *Listeners* in the first instance. Following this, if you require further support please contact me in the Psychology Department at HMP X.

Thanks again for your time and effort in taking part,

Ioan Ohlsson

Psychology Department
HMP X

Appendix 5

Additional results from Study 3

Table 1: Make-up of item parcels for the AMQ with the four-factor solution

	Item No.	Item-to-total correlation	Item parcel
Protection motive			
I have wanted to protect myself	37	.77	P1
I have had to defend myself	19	.76	P1
I wanted to let others know I am not an easy target	32	.76	P1
I wanted to assault someone before they assaulted me	38	.75	P1
I was feeling fearful/afraid	25	.67	P2
I have used it to release anger, frustration or tension	5	.65	P2
I wanted revenge	21	.64	P2
I was provoked by another	39	.58	P3
I was trying to protect others	34	.57	P3
I was reacting to another person making fun of me	22	.57	P3
I have used it to avoid doing something I did not want to	29	.46	P4
I believe the world is a dangerous place and others will try to harm me	15	.45	P4
I have believed that others are 'out to get me'	43	.41	P4
	Item No.	Item-to-total correlation	Item parcel
Social recognition and emotional management aggression motive			
I wanted to gain a reputation	28	.75	S1

I wanted to 'prove' myself to my peers	26	.71	S1
It has helped me to increase my status among my peers	8	.69	S1
I want to stop others from gaining status	42	.68	S1
I wanted to impress groups of peers and be accepted by them	35	.65	S2
I wanted to maintain the status I already have	13	.58	S2
I wanted to release feelings of guilt or shame	24	.55	S2
I believe the victim was going to be an 'easy target'	27	.55	S2
I wanted to release feelings of jealousy	23	.54	S2
I wanted to stop feeling alone	14	.53	S3
I was trying to cope with my difficulties	33	.43	S3
I have wanted to let others know that I am angry or frustrated	40	.42	S3
I thought there would be few or no negative consequences	18	.36	S3

	Item No.	Item-to-total correlation	Item parcel
F3: Positive outcome motive			
I believed it would have a positive outcome for me	1	.78	O1
I am just believing in a way that has worked for me in the past	2	.77	O1
I have used it to make others do what I want	4	.76	O1
I wanted to win the argument or conflict	41	.76	O1
It has been a way of obtaining items from others	7	.72	O2
I have used it to protect my self-esteem	3	.71	O2
I wanted to dominate and control others	36	.66	O3
It has been a way of making sure others avoid me	6	.47	O3

	Item No.	Item-to-total correlation	Item parcel
Pleasure aggression motive			
I have been fantasising about using aggression	46	.66	L1
I have thoughts telling me to hurt others that won't go away	45	.66	L1
I enjoy seeing other people suffer	10	.65	L1
I wanted some fun and enjoyment	20	.61	L2
I wanted to be disruptive	17	.60	L2
My personality makes it more likely that I will be aggressive	16	.60	L2
It is the only way I have of managing conflict with others	31	.60	L3
I wanted to punish others who were 'getting at me'	12	.58	L3
I wanted to humiliate the victim	44	.53	L3
I have just been behaving in a way that others have told me to	9	.53	L4
I have been responding to a mental illness	30	.47	L4

Table 2: Make-up of item parcels for the AMQ with the three-factor solution

Factor 1: Positive outcomes and social status motive (alpha = .95).	Item-to- total correlation	AMQ item no	Parcel
It has helped me to increase my status my peers	.79	8	O1
I wanted to gain a reputation	.78	28	O1
I wanted to impress groups of peers and be accepted by them	.79	35	O1
I wanted to prove myself to my peers	.77	26	O1
I wanted to maintain the status I have	.77	13	O1
I thought it would have a positive outcome for me	.76	1	O1

I wanted to dominate and control others	.72	36	O1
Its been a way I can obtain items from others	.71	7	O2
It was a way of making sure others avoid me	.71	6	O2
I wanted to stop others gaining status	.68	42	O2
I used it to make other do what I want	.67	4	O2
I am just behaving in a way that had worked for me in the past	.65	2	O2
I thought there would be few or no negative consequences	.65	18	O2
I wanted to punish others who were getting at me	.63	12	O3
I used it to avoid doing something I didn't want to	.62	29	O3
I wanted to stop feeling alone	.59	14	O3
I wanted to 'win' the argument or conflict	.58	41	O3
I have just been behaving in ways others have told me to	.53	9	O3
I was reacting to another person making fun of me	.52	22	O4
I wanted to let others know that I am angry or frustrated	.50	40	O4
I wanted to let others know I'm not an easy target	.44	32	O4
I was provoked by another	.36	39	O4
I have used it to release anger, frustration or tension	.34	5	O4

Factor 2: Protection aggression motive (alpha = .86).	Item-to- total correlation	AMQ item no	Parcel
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I have had to defend myself	.67	19	P1
I have believed that others are 'out to get me'	.65	43	P1
I was feeling fearful/afraid	.64	25	P1
The environment I am in makes me aggressive	.63	11	P1
I have wanted to protect myself	.60	37	P1
I was trying to protect others	.59	34	P2

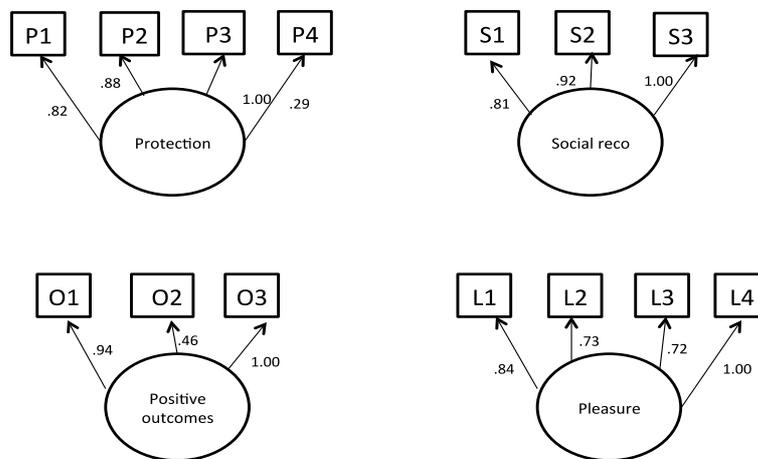
I have used it to protect my self-esteem	.56	3	P2
I believe the world is a dangerous place and others will try to harm me	.55	15	P2
I wanted to assault someone before they assaulted me	.52	38	P2
Factor 3: Pleasure motive (alpha = .90).	Item-to- total correlation	AMQ item no	Parcel
I have been fantasizing about using aggression	.78	46	L1
I had thoughts about hurting someone that would go away	.72	45	L1
I believed the victim was going to be an easy target	.71	27	L1
I enjoy seeing other people suffer	.70	10	L1
I wanted to humiliate the victim	.78	44	L1
I wanted to be disruptive	.66	17	L2
I wanted some fun and enjoyment	.64	20	L2
I have been responding to a mental illness	.62	30	L2
I wanted to release feelings of jealousy	.59	23	L2
It is the only way I have on managing conflicts with others	.58	31	L2
My personality makes it more likely that I will be aggressive	.58	16	L2
I wanted to release feelings of guilt or shame	.53	24	L3
I wanted revenge	.55	21	L3
I was trying to cope with my difficulties	.49	33	L3

Factor analysis results

4-factor solution

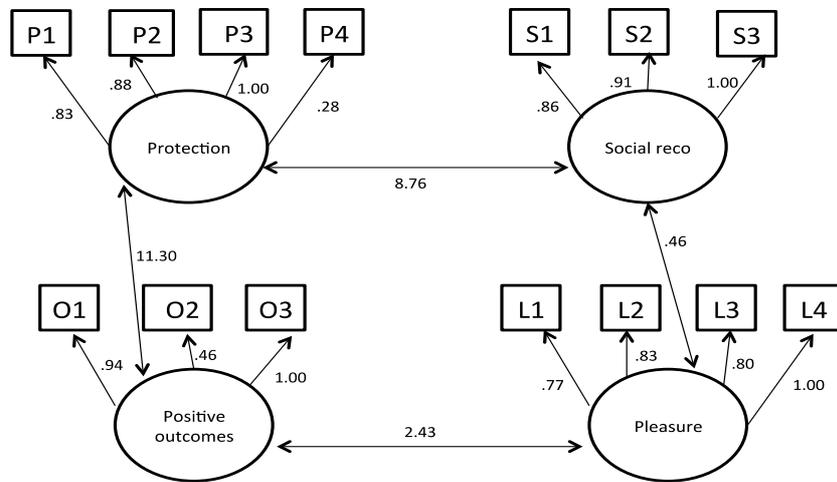
The four factor solution shown in figure 1, had very poor fit (Byrne, 2001) for the data; $\chi^2(68)=23.56$, $p<.01$; GFI = .17; CFI = .42; RMSEA =.37; $n = 234$.

Figure 1: Confirmatory factor analysis output showing model fit for the four-factor model of aggression motivation; $\chi^2(68)=23.56$, $p<.01$; GFI = .47; CFI = .42; RMSEA =.27; $n = 234$.



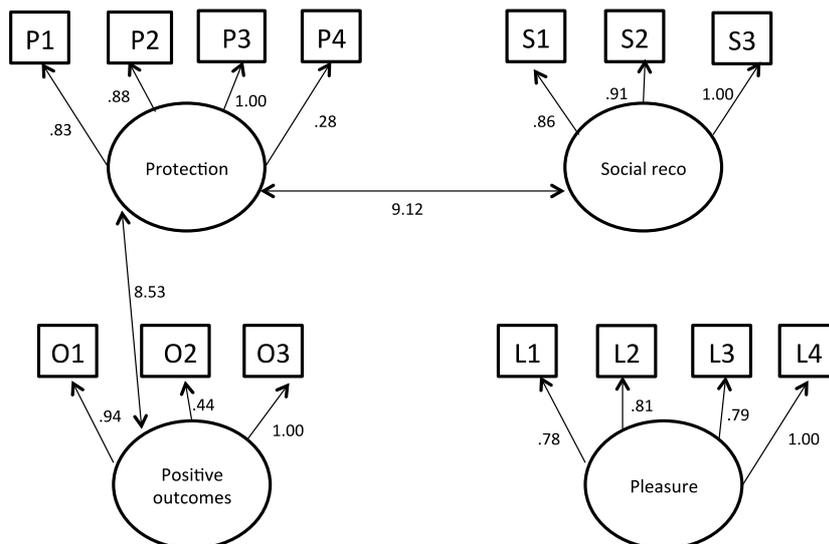
The CFA was re-run, this time adding covariances to acknowledge the correlations found between motivations in the preceding studies (e.g. between protection, social recognition, positive outcomes, and pleasure). As shown in Figure 2, there was a slight improvement in model fit yet this still remained a relatively poor fit for the data; $\chi^2(68)=141.36$, $p<.01$; GFI=.80; CFI=.80; RMSEA=.16; $n = 234$.

Figure 2: Confirmatory factor analysis output showing model fit for the four-factor model of aggression motivation; $\chi^2(68)=141.36, p<.001$; GFI=.80; CFI=.80; RMSEA=.16; n = 234.



Further attempts made to improve model fit were made by examining modification indexes (MI) and item covariances (IC). Removing covariances as shown in Figure 3, worsened model fit; $\chi^2(68)=144.22, p<.01$; GFI=.78; CFI=.76; RMSEA=.19; n = 234.

Figure 3: Confirmatory factor analysis output showing model fit for the four-factor model of aggression motivation; $\chi^2(68)=144.22, p<.01$; GFI=.78; CFI=.76; RMSEA=.19; n = 234.



Caution was exercised with regard to excessively trimming of the model, so as to avoid the development of a model to fit this particular set of data (Tabachnick & Fidell, 2007). The model indicated in Figure 9.1 (Chapter 9) was thus considered to have the best fit using a four-factor solution with this particular data set.

3-factor solution

Removing covariances worsened the fit as indicated in Figure 4; $\chi^2(75) = 87.28$ $p < .01$; GFI = .83; CFI = .92; and RMSEA = .11, and Figure 5; $\chi^2(75) = 177.32$, $p < .01$; GFI = .89; CFI = .86; and RMSEA = .16.

Figure 4: Confirmatory factor analysis output showing model fit for the three-factor model of aggression motivation; $\chi^2(75)=87.28$, $p < .01$; GFI=.83; CFI=.92; RMSEA=.11; $n = 234$.

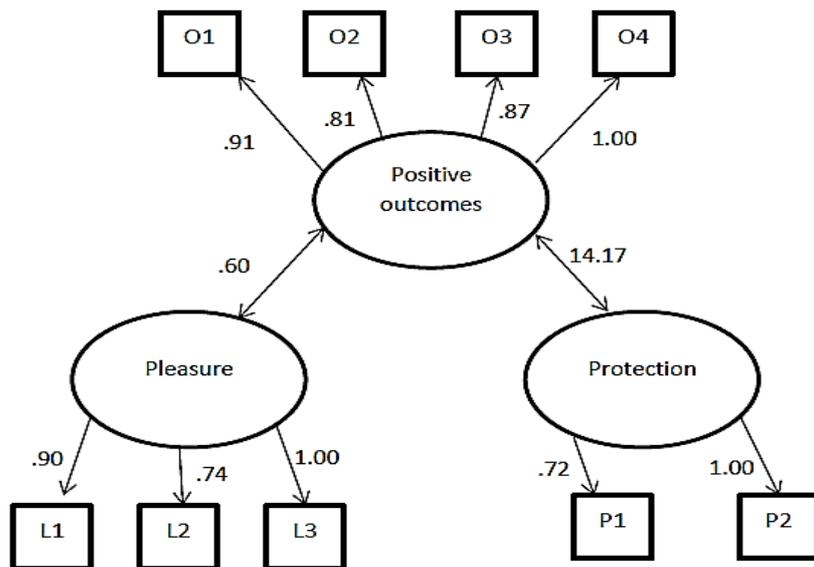
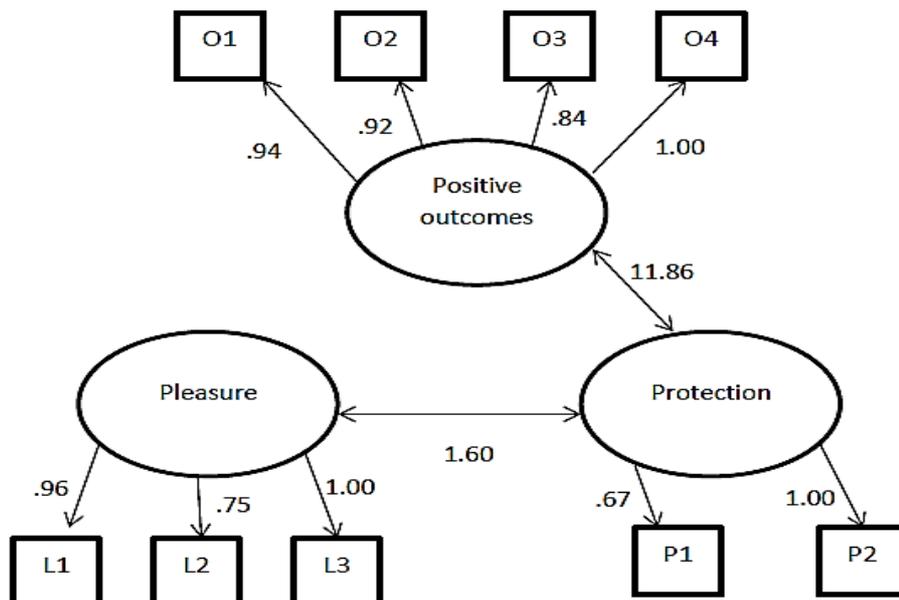
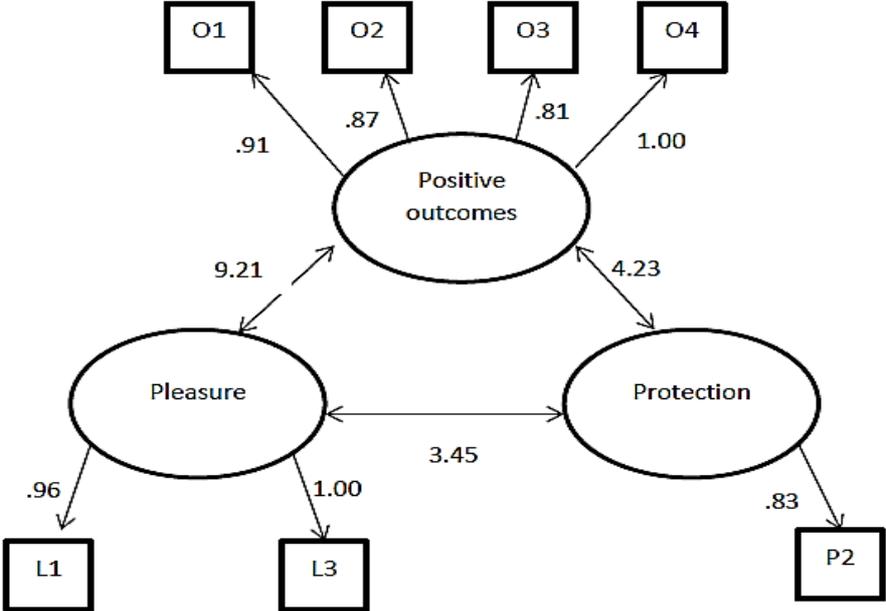


Figure 5: Confirmatory factor analysis output showing model fit for the three-factor model of aggression motivation; $\chi^2(75)=177.32$, $p < .01$; GFI=.89; CFI=.86; RMSEA=.16; $n = 234$.



A model that retained the three-factor solution and covariances, yet with removal of certain item parcels (L2 and P1) following MI inspection was re-run with CFA (see figure 6). Their removal did not significantly improve model fit for the data; $\chi^2(84)=137.43, p<.01$; GFI=.89; CFI=.90, RMSEA=.11.

Figure 6: Confirmatory factor analysis output showing model fit for the three-factor model of aggression motivation; $\chi^2(84)=137.43, p<.01$; GFI=.89; CFI=.90, RMSEA=.11, n=234.



The model indicated in Figure 9.2 (Chapter 9) was thus considered to have the best fit using a three-factor solution with this particular data set.