Predicting Aggression amongst Mentally Disordered Offenders: The role of narcissism, self-concept clarity and aggressive cognitive bias

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OVERVIEW

The overall aim of this work was to consider the role of certain personality and cognitive factors in predicting aggressive behaviour amongst mentally-disordered offenders. The review paper considers the current state of research into violence amongst the mentally ill and the importance of attempting to consider predictors external to the diagnosis. The paper goes on to identify key theoretical concepts within mainstream aggression research that may help further our understanding of aggressive behaviour amongst a mentally disordered population.

The empirical paper goes on to investigate some of these key predictors of aggression identified in mainstream research (narcissism, self-concept clarity, aggressive scripts and beliefs, and hostile information-processing biases), amongst a group of mentally-disordered offenders. Self-concept clarity was found to be the key factor in predicting aggressive beliefs, hostile attributions, and accessible aggressive social scripts.

Finally, the critical review focuses on issues that arose both as a result of the empirical paper's findings, and through the process of the research itself. These included the difficulties involved in attempting to operationalise aggression; design and measurement issues raised within the empirical research; and, finally, the research and clinical implications of the study's findings.

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To my parents – thank you for love and support . I promise to get a proper job now.

To Simon – thank you for making me laugh when I most needed it.

LIST OF TABLES AND FIGURES

PART ONE

LITERATURE REVIEW

How can Mainstream Aggression Research inform us about the Relationship between Mental Disorders and Violence?

ABSTRACT

The central aim of this review was to consider whether theories developed within mainstream aggression research might also be usefully applied in the prediction of violence amongst a mentally disordered population. Current understanding of the relationship between mental illness and violence suggests that our knowledge could be advanced by consideration of factors beyond those intrinsic to diagnosis. Particular predictors identified within mainstream research, such as narcissistic personality traits, and hostile cognitive biases, offer a clear focus for future study development. Furthermore, it would seem that there is a need for mainstream research to apply its concepts to more clinically-relevant populations, such as the mentally disordered, if they are to be considered robust and generalisable theories of aggression.

Overview

"Police killer had history of severe mental illness" (Metro, 2005)

"Gruesome killing by paranoid schizophrenic" (Daily Mail, 2005)

When violence is committed by a person suffering from a mental illness, it becomes headline news. Unfortunately, this has helped lead to the "very real and pernicious stigma" (Nestor, 2002, p1977) that all mentally disordered people are violent. Whilst there is indeed an increased risk for violence amongst certain disorders, such as schizophrenia, this is due to the behaviour of a small subgroup of sufferers (Wallace, Mullen, & Burgess, 1998). It is imperative, therefore, to identify the factors that increase the risk for violence within this subgroup. Furthermore, ascertaining whether the risk factors are intrinsic to the mental condition or actually similar to the risk factors amongst 'normal' populations is a key task for research.

Earlier investigations have focussed on clarifying the relationship between mental illness and violence by considering which psychiatric conditions are more highly associated with violence (e.g. Swanson, Holzer, Ganju, & Jono, 1990). Latterly, the focus has shifted towards more detailed consideration of what, both *within* and *across* various diagnoses, are the risk factors for violence – from situational, developmental, through to cognitive factors (e.g. Arseneault, Moffitt, Avshalom, Taylor, & Silva, 2000; Johnson et al., 2000). However, there is still far to go in order to fully understanding the complexities of the relationship between violence and mental health problems.

At the same time, theoretical developments have also been made within 'mainstream' aggression research. The use of increasingly sophisticated methodologies and the consideration of more varied constructs have meant the development of newer and better theories over the last several years. Simple single process accounts of aggression, such as Dollard's frustration-aggression hypothesis (1939), are now being replaced by more sophisticated models that "weave cognitive, affective, biological, motivational and social variables together in ever increasing complexity" (Geen, 2001, p142). However, although models are developing on a theoretical level, empirical testing is still in its infancy, and the populations being studied are still rather limited.

Thus, whilst both 'mainstream' aggression and the specific study of violence amongst the mentally disordered are developing areas of research, there is still more to do. A factor that has slowed developments across the two areas of research is that they have tended to develop in parallel. Traditionally, violence amongst the mentally disordered has been considered a distinct area of investigation with its own specific predictors compared to aggression in any other population. However, is this distinction necessary or justified? In order to answer this question, it seems prudent to look at ideas and theories within 'mainstream' aggression research in order to see whether they can further our knowledge about this 'distinct' population. Can any of the theories developed in mainstream research inform us about risk for violence amongst the mentally ill? And, if so, which are the most relevant concepts to apply? Or are theories about aggression only actually applicable to non-clinical populations or non-pathological populations?

The purpose of this review, therefore, is to consider the above questions. In the first section, there will be a review of research that has focused on the relationship between mental disorders and violence, and the risk factors that have been identified. The second section will consider the predictors acknowledged in mainstream aggression research that might be relevant to understanding violence in a mentally disordered population. The third section will focus on the limitations of these areas of research to date, both on conceptual and methodological levels. Finally, the last section of this review will consider how research might be integrated in order to advance our understanding of aggression, particularly in high-risk populations such as the mentally disordered.

1. Mental Illness and Aggression

A number of large-scale longitudinal studies have sought to investigate the relationship between, and predictors of violence amongst the mentally ill (e.g. Link, Andrews, & Cullen, 1992; Steadman, Mulvey, & Monahan, 1998; Swanson et al., 1990). Studies of this kind have found, and continue to confirm an association between mental illness and violent behaviour. Rasanen et al. (1998), for example, studied 20 years of data and found rate of crimes committed by male mentally disordered patients was four times higher than those without mental illness. Those studies that use multiple measures of violence (self-report, plus informant and official records) have found the largest associations (e.g. Steadman et al, 1998). Latterly, the task of these large-scale studies has become more about trying to identify what it is about 'mental illness' that increases the risk of violence, as clearly not everyone who is mentally ill is violent. This ongoing task has led to the

identification of a number of different possible risk factors, each of which will be detailed in the following sections.

1.1 Risk Factors

1.1.1 Diagnosis and comorbidity

Some of the large-scale studies mentioned above found that rates of violence differed dependent on psychiatric diagnosis. In a recent birth cohort study of young adults in the community, Arseneault et al. (2000) found that those diagnosed with cannabis dependence were 3.8 times more likely than control subjects to have been violent over the previous year, followed by a 2.5 increase amongst those diagnosed with schizophrenia-spectrum disorder. Furthermore, it appears that comorbidity of disorders only magnifies the risk of violence, with the risk amongst schizophrenia-spectrum disordered people increasing more than two-fold if there is comorbid substance misuse (Arseneault et al., 2000).

Other longitudinal studies have found evidence that personality disorders present a significant risk factor for violence. In a two-year prospective study of community-based mentally disordered individuals, Moran et al. (2003) found that comorbid paranoid, dissocial, or impulsive personality disorders significantly increased the risk of violent behaviour. Other similar findings include that of Putkonen, Kotilainen, Joyal, and Tiihonen (2004) who investigated the roles of both personality disorder and substance use disorder in risk for violence amongst the mentally ill. They found that those who had both disorders were a particular risk group for severe violence and accounted for nearly two thirds of the homicidal acts amongst the total sample.

1.1.2 Characteristics of the illness

There is an established differential risk for violence dependent on condition, yet it is apparent that clinical diagnosis alone is not a specific enough predictor of violent behaviour (Stompe, Ortwein-Swoboda, & Schanda, 2004). Other lines of research have, therefore, focused on exploring the features *within* these disorders that might explain heightened risk for violence. Link and Stueve (1994) looked in detail at the content of delusions in schizophrenia as a potential predictor of violent behaviour. They found those delusions with 'threat/control override' (TCO) content to them were the most strongly related to violence. They derived this term to explain delusions where a person feels extremely threatened by someone or something he or she believes intends to cause harm ('threat'), in addition to a sense of having his or her self-control overridden by an external force ('control override').

Other studies have replicated this finding (Link & Stueve, 1998; Swanson, Borum, Swartz, & Monahan, 1996; Swanson et al., 1997). Swanson et al. (1996), for example, concluded that the 'threat/control' element of a delusion correlated more strongly with violence than other positive symptoms, such as delusions of grandeur, or hallucinations. However, this finding has not been confirmed by all studies and recent research by Stompe et al. (2004) found no difference between violent and non-violent schizophrenia patients regarding the prevalence of TCO symptoms. However, when *severity* of violence was considered, they did find that unspecific 'threat' symptoms were associated with severe violence, but not 'control-override'.

1.1.3 Premorbid personality and cognitive style

Other lines of research have shifted the focus from the clinical features of an illness per se, towards the consideration of 'individual differences' in predisposing some individuals to violence when mentally unwell. Arseneault et al.'s (2000) birth cohort study found that 10% of the sample's violence risk was uniquely attributable to schizophrenia-spectrum disorders. However, when this finding was investigated within an individual differences framework, they found that violence was best explained by *premorbid* excessive 'perceptions of threat' and a history of conduct disorder. They evaluated perceptions of threat using a self-report scale that rated how much the individual felt mistreated and the target of false rumours, plus the extent to which they believed others wished them harm. More recently, McNiel, Eisner, and Binder (2003) have investigated a similar thinking style (termed 'hostile attribution style') amongst psychiatric patients. This study also found an association between this so-called thinking style and violence, even when diagnostic characteristics were controlled for. Both sets of authors concluded from their studies that the predictor of later violence is not necessarily a specific feature of the illness, but a tendency to see the world as a threatening place *premorbidly*, or a *premorbid* cognitive personality style that tips the individual towards violence during episodes of psychosis.

In support of this 'individual differences' viewpoint, Nestor (2002) reviewed the role of personality dimensions as risk factors for violence amongst the mentally disordered. He argued that specific clinical risk factors develop early as personality traits, such as narcissism or paranoid personality style, and are then differentially associated with mental disorder. Johnson et al.'s community-based longitudinal study (2000) offers some support for this position. In this study, it was found that an

increase in symptoms of personality disorder in adolescence was predictive of increased rates of violence in adolescence and early adulthood. This was still a significant association after controlling for other risk factors, such as parental psychopathology, and other co-occurring psychiatric disorders. Furthermore, when broken down, it seems that it may be specific personality features that are key predictors of violence. They found that paranoid, narcissistic, and passive-aggressive symptoms during adolescence were independently associated with risk of violence in adulthood. This might suggest that it is particular personality dimensions that are predictive of increased violence risk more so than a diagnosis of personality disorder per se.

1.1.4 Cognitive bias

The previous section reviewed studies that considered the role of cognition in terms of premorbid cognitive personality style. Another branch of research has considered cognitive factors in relation to how an individual *processes* social information. Similarly to and, arguably, more so than the studies previously mentioned, this line of research represents a shift away from thinking about the 'mental illness' as a sufficient explanation of violence.

Blackburn and Lee-Evans' (1985) study of psychopaths suggest that cognitive bias might explain heightened aggression in this particular subset of individuals. They looked at violent psychopaths' responses to anger-evoking situations in comparison to violent non-psychopaths. Within the psychopath group, they further distinguished between primary and secondary psychopaths – the former characterised as generally outgoing, lacking in anxiety or depression, and the latter characterised as socially

withdrawn and more emotionally disturbed. Whilst the secondary psychopaths were found to have the strongest reactions of all groups, both types of psychopath tended to have much angrier reactions to 'personal threat' or 'provocation' situations than non-psychopaths. The authors suggested that this might demonstrate that psychopaths' increased level of violence stems from increased awareness of any potential violation of their personal domain. In other words, the psychopath shows a cognitive bias in processing information that means he is more likely to interpret social information from others as a sign of hostility, particularly if the situation is seen as a challenge to the self. Consistent with this hypothesis an earlier study found that psychopaths anticipated less negative reactions to harming someone they dislike, and saw harm-doing as a self-congruent behaviour (Klass, 1980). Blackburn and Lee-Evans (1985) argue that this supports the idea of some kind of biased expectancy about the negative intent of others

Serin (1991) is another of the few studies to investigate in more detail the cognitive processes that might explain the risk of violence amongst psychopaths. Using hypothetical scenarios depicting provocation situations, it was found that psychopaths were more likely to make attributions of hostile intent. Specifically, they were more likely to conclude that the other person was behaving out of disrespect and being intentionally harmful. These particular studies have been conducted amongst psychopaths, however McNiel et al.'s study (2003) does offer some evidence that cognitive-processing bias ('hostile attribution style') is also associated with increased violent behaviour amongst those with Axis I mental disorders. Beck (1999) has suggested that whilst both groups might show hostile bias in information-processing, psychopaths and "reactive offenders" (Beck, 1999, p135) may differ in

what purpose the bias serves. For psychopaths it may reflect a narcissistic need to establish superiority, whereas for the more reactively violent it may reflect outrage that no one seems to recognise them. This is clearly an area that warrants further investigation.

1.2 Theoretical Limitations

Whilst there has been a noticeable shift towards consideration of factors beyond diagnosis, the predominant focus of this field of research has been on features intrinsic to the mental illness in order to explain vulnerability to violence. For example, authors such as Arseneault et al. (2000), and McNiel et al. (2003) argue that their findings are evidence of a vulnerable pre-morbid personality style. However, when their measures are closely examined, it would appear that they actually tapping into something more akin to suspiciousness or paranoia than 'threat perception' or 'hostile thinking'. These studies (particularly McNiel et al.'s (2003) cross-sectional study) are arguably accessing thinking styles that are actually features of the mental illness itself. This focus on illness features has meant that much of the research has overlooked factors outside 'diagnosis' that may actually prove to be equally or more important predictors of violence amongst those with a mental illness. It would seem prudent, therefore, to try and incorporate some of the theories developed in more mainstream aggression research into studies focused on the mentally disordered.

A recent small-scale study provides a good example of research attempting to make this shift. Abu-Akel and Abushua'leh (2004) investigated theory of mind amongst violent and non-violent schizophrenics. The rationale for the study is actually based

on a similar criticism of this area of research, with the authors arguing that whilst the reduced ability to infer others' mental states and empathise has been recognised in violence generally (e.g. Covell & Scalra, 2002), these ideas have not really been applied to violence amongst schizophrenics. They found that violent patients had more difficulty with empathic inference (recognising how a person would feel in a situation), but good mentalising abilities (the ability to infer mental states of others). Whilst initially this seems counter to predictions, the authors suggest mentalising might be used to manipulate and deceive victims.

Although a small-scale study, this research has been mentioned because it represents a move towards testing out theories from more general aggression research in investigations of violence amongst the mentally disordered – rather than seeing these areas as totally distinct.

1.3 Summary

Research investigating the relationship between violence and mental illness can be split into two fairly distinctive strands, with large-scale studies focused on establishing the differential risk dependent on psychiatric condition and comorbidity. Other lines of research have attempted to identify specific risk factors within the different mental disorders. Certainly, it seems that attempts to explain the increased and differential risk for violence amongst the disorders have largely focused on factors intrinsic to the condition, such as the content of delusions in schizophrenia. However, a few key pieces of research have focused on whether there are premorbid features of the individual that might predispose him or her to violence when mentally ill, such as hostile thinking bias, or narcissistic character features.

It has been stipulated that risk for violence may well be mediated by distinct pathways for different mental disorders (Nestor, 2002). The risk may be increased via narcissistic injury in antisocial conditions such as psychopathy, or by premorbid paranoid cognitive personality style in schizophrenia spectrum disorders. However, it seems that there has still been little empirical investigation of the exact nature of the relationship between premorbid or individual difference factors and violent behaviour when mentally ill. It seems that more studies, such as that of Abu-Akel and Abushua'leh (2004), are needed that draw on factors that have been identified as predictors of violence generally. In the next section, a selection of key concepts from mainstream aggression and violence research that may prove useful in furthering this endeavour will be reviewed.

2. Key Concepts within Mainstream Aggression Research

A number of different and increasingly complex theories have been developed within mainstream research to try to explain aggression and violence. Recent models of aggression, such as Anderson and Bushman's General Aggression Model (GAM: 2002), acknowledge the important role and interaction of a variety of variables from developmental and biological through to environmental and situational. This type of model therefore attempts to bring together various theoretical concepts under one framework. However, consideration of all the factors implicated in aggression and, therefore, all those covered by the GAM is beyond the scope of this review. However, there are a few concepts that could prove particularly significant in helping to explain violence amongst the mentally disordered. The research outlined in the

previous section of this review gives some clues as to what these key concepts might be.

Certain personality dimensions have been implicated as predictive of aggression amongst the mentally ill, such as narcissistic characteristics (Johnson et al., 2000), yet there has been little further development of these ideas. However, within mainstream aggression research, this particular personality concept has been well investigated, with a number of studies focused on self-esteem, narcissism, unstable ego, and the potential associations with heightened aggression. Similarly, studies such as Serin (1991) have implicated distorted cognitive interpretations in violence risk, yet this finding has prompted little further investigation of whether these distortions play a role in conditions other than psychopathy. However, there is a body of research within the mainstream aggression field that has focused on cognitive bias in information-processing, and its association with increased aggression. Similarly to the research on personality factors, though, these theories do not seem to have been drawn on when predicting violence amongst the mentally disordered.

Arguably, mainstream aggression research specifically relating to self-esteem, narcissism, and cognitive bias might prove particularly useful in helping to explain aggression in the mentally disordered population. The following section will, therefore, review the theories that have been postulated so far on the association between these factors and aggression within 'normal' populations.

2.1 Personality Factors

2.1.1 Self-esteem

The concept of self-esteem is most often used to refer to a global overall evaluative view of the self and, as such, self-esteem research measures yield scores for individuals along a continuum of high to low. The traditionally held view within mainstream aggression research has been that *low* self-esteem is associated with aggression. This has often been cited as a causal factor in various types of violent behaviour, such as domestic abuse (Long, 1990), or violent gang behaviour (Jankowski, 1991). However, in a key interdisciplinary review, Baumeister, Smart, and Boden (1996) challenged this assumption by illustrating that empirical evidence for this long-held view was inconsistent and, in some cases, even contradictory. Baumeister et al. (1996) argued that whilst many studies had reached a conclusion that violence often compensated for low self-esteem there was, in fact, very little direct evidence for this. Toch (1993), for example, observed that violent men seek out situations in which their self-worth is challenged, resulting in a violent altercation. He concluded from this that these men are seeking out these challenges in order to gain self-esteem. However, Baumeister et al. (1996) argued that it is equally, if not more likely that seeking out risky situations would be more appealing to those with a very *inflated* sense of self-importance, in order to confirm this self-view.

The challenges in Baumeister et al.'s (1996) paper prompted renewed interest in the concept of self-esteem and its relationship to aggression. In the most recent review of the role of self-esteem in aggressive behaviour, Salmivalli (2001) suggested that the reason for the mixed and often contradictory evidence is that the conceptualisation

and, therefore, the measurement of 'self-esteem' has been problematic. She has argued that because research in this area has been based on considering self-esteem as a high-low continuum, the idea that there may actually be *qualitatively* different types of self-esteem has been ignored. It has been asserted that those who score high on traditional measures are actually a heterogeneous group and that it is only a subset of those who score 'high' on self-esteem measures that are more prone to aggression.

This has, therefore, led to investigations focusing on the possible characteristics of this suggested 'subset' of high self-esteem scorers. Baumeister et al.'s review (1996), for example, argued that these individuals respond aggressively only to 'ego threat' – that is, anyone or thing that threatens their high self-appraisal. The reason why an 'ego threat' should concern this type of individual so much is because they actually fear losing self-esteem in the face of provocation (Baumeister et al., 1996). Whilst these conclusions were largely based on indirect evidence, Kernis, Granneman, and Barclay's (1989) study offers some support for these ideas. They found that the *stability* of high self-esteem was a key factor in predicting aggression. Those people who had high but unstable self-esteem (large degree of daily fluctuation) were significantly more likely to experience anger and hostility, whereas high but stable self-esteem individuals reported the lowest. Kernis, Cornell, Sun, Berry, and Harlow (1993) concluded that this subset may have high self-esteem on measures, but that the self-view is very fragile and, therefore, much more vulnerable and reactive to any criticism or challenge.

2.1.2 Narcissism

Bushman and Baumeister (1998) concluded that the characteristics of this subset of individuals scoring high on self-esteem actually corresponded more closely to the concept of 'narcissism' rather than 'high self-esteem' per se. The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV: American Psychiatric Association, 1994) describes narcissism as a sense of grandiosity that is used to bolster a fragile self-esteem. As such, narcissistic individuals may react with rage if this self-esteem is threatened. Narcissism "may be less a matter of having a firm conviction about one's overall goodness...than a matter of being emotionally invested in establishing one's superiority" (Bushman & Baumeister, 1998, p222). In terms of evidence for narcissism as a predictor of aggression, a number of early questionnaire studies pointed towards a correlation between narcissism and hostility (e.g. Rhodewalt & Morf, 1995). As previously discussed, the role of narcissistic personality dimensions in predicting violence has been alluded to amongst the mentally ill (Johnson et al., 2000). Narcissistic, paranoid, and passive-aggressive personality dimensions have been found to be associated with more extensive criminal histories amongst violent male offenders (Blackburn & Coid, 1999). Finally, in Blackburn and Lee-Evan's (1985) study, the conclusion was drawn that psychopaths' aggressive responses related to a sense of entitlement and protection of personal domain – concepts that fit well with narcissistic personality features.

In mainstream research, the association between narcissism and aggression has also been tested within a laboratory setting in order to manipulate 'ego threat' (Bushman & Baumeister, 1998). The hypothesis was tested that in situations where the high but fragile sense of superiority is threatened, the narcissist will respond aggressively

towards the perceived source of that threat. This was termed 'threatened egotism'. The authors measured narcissism using the Narcissistic Personality Inventory (NPI: Raskin & Terry, 1988), and simple self-esteem using a traditional measure. They manipulated 'ego-threat' by asking participants to write an essay which was then 'evaluated' either positively or negatively. The participant was then given the opportunity to aggress towards the 'evaluator' afterwards by way of delivering and controlling the level of a noise blasted through to him or her. The authors found that whilst level of self-esteem was not related to aggression, those who scored highly on the narcissism measure were significantly more likely to respond with high levels of aggression if their work had been negatively appraised. This strong association between narcissism and subsequent aggression post 'threat' (usually in the form of failure at a task) has been replicated in other experimental studies (Rhodewalt & Morf, 1998; Stucke & Sporer, 2002).

2.1.3 Inflated, unstable ego

In their recent laboratory study, Stucke and Sporer (2002) extended Bushman and Baumeister's (1998) research by not only looking at measures of narcissism but also self-concept clarity. Self-concept clarity refers to the extent to which self-beliefs are clearly defined, consistent, and stable (Campbell et al., 1996). The authors reasoned that this would tap into the *fragility* of self-belief that is a central feature of clinical definitions of narcissism yet not, in their opinion, covered adequately by the NPI measure. Furthermore, clarity is argued to be distinct from self-esteem, in that it is about how consistent and clear the self-view is, rather than about its content (i.e. whether highly favourable or not). Stucke and Sporer's (2002) study was, again, a task-failure paradigm similar to Bushman and Baumeister (1998) where the

participants were evaluated on an IQ test, and then allowed to *verbally* aggress post-task. As predicted, they found that highly narcissistic individuals that had low self-concept clarity were the most aggressive post-failure and reported higher levels of anger. Importantly, it was found that those who were highly narcissistic but had high self-concept clarity showed much lower levels of aggression than their counterparts with low clarity did. This supports the findings of studies, such as Kernis et al. (1989) that aggression is associated with those who have an inflated, but also extremely fragile and changeable sense of self.

2.2 Cognitive Factors

A wealth of research has investigated various aspects of cognitive processing that may be important in the predisposition towards or mediation of aggressive behaviour. These theories might also help in understanding violence within the mentally ill population. An individual's cognition affects the perception and interpretation of an event, as well as response selection. Beck (1999) stipulates that "the crucial element is the explanation of the other person's action, and whether that explanation makes the other person's behaviour acceptable to us" (Beck, 1999, p43). Thus, how we perceive and process information is key in predicting how we subsequently act. If, therefore, cognitive processes that influence our understanding of, and reaction to a situation become distorted, aggression may be more likely. Certainly, the limited research on cognitive distortions and violence amongst the mentally ill (e.g. McNiel et al., 2003; Serin, 1991) suggests this cognitive theory of behaviour is applicable to this population.

Within mainstream research, Dodge and colleagues have extensively investigated information-processing and how distortions at different points within the processing may link to aggressiveness. Crick and Dodge (1994) developed a comprehensive six-stage model amongst children to explain these links. It is suggested that whether aggression occurs in a given situation is broadly a function of how social information is processed by the individual at various different stages of the event (Crick & Dodge, 1994) and whether they are vulnerable to distorting the information offered. In order to highlight how aspects of this theory might help in understanding aggression amongst a mentally disordered population, the following is a brief outline of the model. The 6 stages are:

1 – *Initial encoding phase* - the individual selectively attends to and encodes situational cues from an event.

2 - *Interpretation phase* – the individual utilises a number of processes in order to try to make meaning out of the selected cues. This is done by way of matching cues with information already stored as mental representations. This previously stored information may take the form of social schema, scripts and social knowledge.

3 - *Clarification of a goal* – the selection of a goal or desired outcome for the situation.

4 – *Response access* – the individual accesses from memory the possible responses to the situation.

5 – *Response selection* – the individual chooses the most positively evaluated response for enactment. This can be influenced by outcome expectancy, self-efficacy, and evaluation of the appropriateness of the response.

6 – *Enactment* – the chosen response is behaviourally enacted.

Key elements of this model that could offer some important ideas when considering aggression amongst the mentally disordered are the encoding and interpretation phases, and response access and selection. The research that suggests their relevance to a mentally ill population will be reviewed in the following sections.

2.2.1 Encoding phase bias

Research on this early stage of information processing suggests that there can be deficits in the encoding of situational cues and information. Studies have demonstrated that this can take the form of attentional or perceptual bias, often on an implicit level. For example, adult males who are more anger-prone are much more likely to be attentive to hostile cues in their environment (Eckhardt & Cohen, 1997). Two recent studies have investigated this implicit perceptual bias for aggressive-related material amongst a prison population. Using an emotional Stroop task, Smith and Waterman (2003) found a significant response bias to aggression words amongst violent offenders and aggressive students compared to non-aggressive participants. Aggression was measured by Index Offence (for prisoners only) and level of anger. In their second study, Smith and Waterman (2004) used a dot probe and a visual search task to further investigate possible perceptual biases for aggressively themed material amongst hostile individuals. As in the previous study, they found a significant response bias towards aggression words amongst violent offenders and aggressive students. Interestingly, in this latter study, it was found that the best predictor of bias was previous experience of aggression, not level of anger.

2.2.2 Interpretation phase bias

The interpretation stage of social information-processing and its relationship to aggression has been extensively researched, particularly amongst children and adolescents. An important aspect of this has been the investigation of attributions of peer intent in social situations. This has commonly been measured using a hypothetical scenario paradigm, where children are read a story or shown video clips about an unfortunate event that occurs (e.g. the child's walkman is broken by another child) and the participants have to decide why they think the 'perpetrator' acted the way he or she did. There are a number of different conditions contained in the scenarios – the intent of the perpetrator being clearly malevolent, accidental, or ambiguous. When the situation is ambiguous – that is, the intent is unclear – it has been consistently found that highly aggressive children are most likely to attribute the 'perpetrator's' actions to some purposeful malevolent intent. This tendency has been termed the 'hostile attribution bias' and has been consistently found amongst aggressive children and adolescents in a number of studies (see Crick & Dodge, 1994, for a review).

Within an adult population, Copello and Tata (1990) have investigated this aggressive interpretative bias amongst offenders. They assessed it by asking participants to read sentences that were ambiguous for aggressive meaning. They found that offenders and those high on hostility were more likely to interpret the sentences aggressively compared to controls. This cognitive distortion is, in effect, a specific type of Fundamental Attribution Error as originally described by Heider (1958). It would seem that when information regarding the cause of an aversive

event is ambiguous, an individual may be disposed to assume that the cause is deliberate, not accidental, thereby committing the fundamental attribution error.

2.2.3 Response access and selection

Finally, some research has focused on the later stages of social information processing – that is, the stages that involve the accessing and selection of a solution to the 'conflict'. It seems that aggressive individuals have a limited ability to generate a wide range of possible solutions to conflict – hence relying mainly on more aggressive solutions. Slaby and Guerra (1988), for example, found that aggressive adolescents generated less positive solutions to situations than their less aggressive counterparts. Furthermore, they could identify fewer negative consequences of utilising an aggressive solution, suggesting that aggressive young people have positive outcome expectancies about the use of aggression as a solution. Other studies support this, having found that aggressive children believe their aggressive solutions will result in relief from the negative behaviour of others (Perry, Perry, & Rasmussen, 1986) and control over peers (Boldizar, Perry, & Perry, 1989). These beliefs about the outcome of their actions increase the likelihood that they will use an aggressive solution.

2.2.4 Social scripts

The response access and selection stages of Crick and Dodge's (1994) model suggest that the relationship between social information processing and aggression is cyclical and the more that aggression is chosen and implemented as a solution, the more it will endorse selective attention to cues, hostile attributions, and use of further aggression in future events. Certainly, the continued use of aggressive behaviour

invites social rejection. In turn, this rejection may endorse the aggressive child's beliefs that social relationships and interactions should be viewed suspiciously and, thereby, promote information-processing biased towards aggression (Huesmann, 1998).

Huesmann (1988) has argued that this cumulative process might help to explain how individuals can become habitually aggressive – that experiences are encoded in memory and increasingly reinforced until they become quite complex belief systems that determine behaviour. Huesmann termed these belief systems aggressive 'social scripts' – that is, internalised guides for behaviour in certain social situations. As more events are encountered in which these aggressive scripts are employed, the more these scripts are rehearsed and elaborated, and the more easily they are retrieved in the next conflict situation. Certainly Zelli, Dodge, Lochman, and Laird (1999) has shown in longitudinal studies of children that pro-aggressive beliefs or scripts predicted biased processing on year on, and more aggressive behaviour two years later.

Linking back to the final stages of Crick and Dodge's model, it would seem that in aggressive individuals, these beliefs systems are easily activated in social situations to determine 'response evaluation' and behaviour, and often more relied on than any current situational cues (Dodge & Tomlin, 1987). Smith and Waterman's (2004) findings that previous experience of aggression is the best predictor of current aggressive perceptual bias also lends support to this 'script' theory. The finding seems to suggest that experience has elaborated the aggressive mental representation, and it is therefore more easily activated even at the initial encoding phase of

information-processing. This point has also been demonstrated in studies where participants are asked to write continuing sentences to stories depicting an aggressive encounter that either has a positive or a negative outcome. Those high on trait aggressiveness are more likely to write aggressive sentences even when the aggressive act in the story has had a negative result – thus choosing an aggressive response irrespective of situational cues (Bond, Bauer, & Wingrove, 2004).

2.3 Theoretical Limitations

Whilst mainstream aggression research has produced some important theories, a key criticism that can be levelled at all this work is that there has been limited integration of the different theoretical strands. It seems that the different areas of research interest have historically developed in parallel, with theories about the role of various personality factors sitting side by side with those regarding cognitive processes, rather than being aspects of one unifying theoretical framework. Kalmar and Sternberg (1988) have suggested that theory development in psychology should actually be about "theory-knitting" (p153). This strategy stipulates that researchers should integrate best aspects of different theories with their own ideas in order to bring together theories under one overarching framework, rather than as competing explanations of a phenomenon.

This criticism has begun to be addressed with the development of integrated models such as Anderson and Bushman's General Aggression Model (GAM: 2002). This model has been developed as a response to the fact that many theories have tended to have a narrow focus and different empirical findings have tended to be very loosely connected. It proposes that there are various 'inputs' (individual differences;

situational factors), 'routes' (affect; cognition, arousal), and 'outcomes' (aggression versus constructive solutions). Certainly, this model has attraction as an integrated theoretical model, although empirical testing to ascertain its utility as a working model is still in its infancy. Studies have, thus far, considered how certain features of the individual and of the situation might interact to influence an individual's affect, cognition, and behaviour. Anderson and Dill (2000) found that the situational variable of watching violent video games can increase aggressive thoughts and feelings, particularly in those with readily available aggressive social scripts. More recently, Joireman, Anderson, and Strathman (2003) have investigated both personality and cognitive factors in the prediction of aggression. They concluded, based on multiple regression analyses of questionnaire data, that hostile cognitions and negative affect mediated the relationship between the personality characteristics of impulsivity, sensation-seeking, and aggression.

Whilst the above studies demonstrate how researchers are beginning to try to integrate the different implicated factors in the production of aggression, there are still many more possible interactions to be considered. It could be argued that the lack of empirical testing of the GAM *as a whole* is due to the fact that it is still a rather disparate model, with factors sitting side by side rather than in combination. If one considers the factors that this review has focused on, then there seems to be a paucity of research that has incorporated narcissism into this kind of overarching model of aggression. Whilst narcissism has been shown to predict aggression in 'ego threat' situations there has, in fact, been very little investigation of how the relationship between narcissism and aggression might be *mediated.* It has been concluded that the type of aggressive behaviour demonstrated by narcissists in their

laboratory 'ego-threat' studies is directed against the source of the threat in order to "apply punishment and to re-establish high self-esteem by demonstrating one's superiority" (Stucke & Sporer, 2002, p 529). However, this conclusion is actually rather speculative, as the research did not investigate the kind of thinking process that might mediate the narcissism – aggression relationship. If one considers them in terms of the GAM model, these studies have looked solely at an 'input' factor (narcissism), without considering the 'route' (i.e. cognitive processes) by which this individual difference comes to influence aggressiveness.

A handful of studies have attempted to address this matter by considering the association between narcissism and self-enhancing cognitive strategies. In particular, the studies of Rhodewalt and Morf (1998) and Stucke (2003) have both utilised the original Bushman and Baumeister (1998) experimental paradigm where individuals completed tasks at which they both succeeded and failed. Rhodewalt and Morf (1998) found that the self-attributions that narcissists offer for their success and failure have a mediating role in the relationship between the personality characteristic and aggressive response to 'threat'. Specifically, they found that narcissistic individuals were more likely to attribute initial success to ability and were then angrier and took less blame when subsequently receiving failure feedback. More recently, Stucke (2003) replicated the finding that narcissists showed a stronger tendency to attribute success to ability, and additionally found that they tended to attribute failure to task difficulty more so than other individuals. Therefore, whilst some recent research is certainly trying to empirically study personality and cognitive factors within the one investigation, studies attempting integration like this are still quite sparse.

2.4 Summary

Despite the criticism levelled at this research for lack of integration between areas of interest, mainstream aggression research has produced some important findings in recent years, particularly in relation to certain personality features and thinking patterns that are implicated in aggression. When considering which of these theories may prove useful in understanding aggression amongst the mentally disordered population, it seems that fragile narcissism and the extensive area of hostile-prone cognitive bias may be key areas to investigate. An inflated but fragile sense of self has been shown to consistently predict heightened aggression in response to a direct ego-threat. Hostile-prone cognitive bias is strongly correlated with aggressiveness in ambiguous social situations. Furthermore, these cognitive distortions have been found across all the stages of information processing, from initial attentional bias, through to making hostile attribution error, and finally, bias towards choosing and valuing aggressive solutions to situations. Habitual use of aggressive solutions also seems to create highly accessible hostile 'scripts'. Most importantly, these are the factors that have been alluded to as potential predictors of violence amongst the mentally disordered in the limited research that is available to date (e.g. Johnson et al., 2000; Serin et al., 1991), yet there have been virtually no experimental investigations to confirm these relationships.

3. Further Limitations

Thus far, this review has firstly summarised some of the main findings from research on the relationship between mental illness and aggression, and secondly identified certain predictors from mainstream aggression research that may help to understand

aggression in a mentally disordered population. In reviewing both these areas, some key theoretical limitations were discussed, such as the over-focus on characteristics of the mental illness itself to explain violence, or the lack of theoretical integration in mainstream research. However, there are some other issues within these areas of research that require further consideration. Firstly, some key design limitations and, secondly, the restricted populations studied in these areas of research. Each of these criticisms will now be considered in turn more fully.

3.1 Study Design Limitations

It has been argued in this review that there are strands of aggression research that have developed neat theories but in parallel with one another rather than as part of an integrated model. Unsurprisingly, this trend has been reflected in study design as well. Historically, the study designs employed appear to be quite different dependent on which area of research is being investigated. It appears that this may have limited the generalisability of findings in some areas, whilst other areas of research have made good use of a variety of methodologies.

3.1.1 Mental disorder and violence

Research investigating the relationship between mental illness and violence has been dominated by large cohort studies investigating a number of different predictors using regression analyses. However, some studies within this area have used smaller quasi-experimental designs in order to investigate in more detail specific predictors of aggression – such as Abu-Akel and Abushua'leh's (2004) study of theory of mind, and Serin's (1991) study of psychopaths' reactions to provocation. Both these studies utilised paradigms in which the participants had to respond to hypothetical scenarios

on a number of dimensions. They could therefore ascertain whether manipulating certain factors has an effect on key outcome variables, such as level of hostility.

3.1.2 Narcissism and self-concept clarity

It is arguably the mainstream research studies on narcissism within 'normal' populations that have been more limited in their utilisation of different methodologies. These studies have, overall, utilised the same or very similar experimental paradigms. In essence, the study is laboratory-based where experimental manipulation of performance feedback on some kind of task is carried out. In Bushman and Baumeister's (1998) study, for example, the participants were given feedback (manipulated to be either positive or negative) on an essay written, whilst in Stucke and Sporer's (2002) paradigm, the feedback was for an intelligence test. Level of aggressive response to the feedback is observed as a function of level of anger and, for example, how much the participant blasts the 'evaluator' with noise (Bushman & Baumeister, 1998) or how negatively the individual rates the evaluator (Stucke & Sporer, 2002).

Whilst these studies have produced some important findings, there is the issue of validity in laboratory-based studies that continues to be debated. Although it is often stipulated that the design of these studies heightens the chance of good internal validity, on the flip side, it is often argued that lab-based studies compromise the external validity of the research. Whilst Anderson, Lindsay, and Bushman (1999) have convincingly argued that the correspondence between lab and field-based effect sizes across a number of variables (from aggression to memory) are considerable,

there are still a couple of points to be made about the study of aggression specifically.

The first issue is that although these studies are based on an ego-threatening feedback, the 'threat' always concerns intellectual abilities. In essence, this means that conclusions made that narcissists respond significantly more aggressively to ego-threat only really stands when one is considering a threat to intellectual ability. It is clear that these studies need to be replicated using other 'ego-threat' situations. A recent example of this has been investigations using social rejection as the 'threat' to self. Twenge, Baumeister, Tice, and Stucke (2001), for example, found a higher level of aggressive and anti-social behaviour following social rejection (in a lab-based design), and Twenge and Campbell (2003) have suggested that this is more likely amongst narcissists than non-narcissists. However, there is still a paucity of research considering what would seem to be key 'threat' situations, such as those involving social interaction whether it be social rejection, or other aspects, such as social humiliation.

A second related issue is that the association between narcissism and aggression is always investigated in situations where the individual is quite obviously threatened. It is clear that, in the real world, aggression is not always the result of an clear threat. In fact, as this review's consideration of cognitive process research has illustrated, aggression is often seen in *ambiguous* situations, where the actions of the 'perpetrator' could actually be interpreted in a number of different ways (Beck, 1999). This further reduces the external validity of the narcissism studies as it

narrows the theory's generalisability to aggression in only those situations where there has been a clear challenge to the individual.

Considering the relationship between narcissism and aggression in more applied contexts may help to address this matter although, with a couple of exceptions, few studies have done so thus far. Stucke (2001), for example, has found that narcissism and self-concept clarity are significantly related to aggressive driving behaviour. More recently, Bushman, Bonacci, van Dijk, and Baumeister (2003) looked at rape as a form of highly aggressive behaviour and investigated narcissism as a risk factor for sexual coercion. They found that narcissism was positively associated with rape-supportive beliefs and negatively associated with empathy for rape victims. Both these studies demonstrate attempts to see if lab findings of a link between narcissism and aggression hold up when considering real world behaviours. Furthermore, both studies suggest a relationship between narcissism and aggression even in situations where there is not such a direct ego threat made.

However, there is still the issue of what 'aggression' actually means in these contexts. Other studies, such as Smith and Waterman (2004), have suggested that 'anger' is not that strong a predictor of actual aggressive behaviour. Furthermore, Archer and Haigh (1997) have found that normative beliefs about use of aggression were a better predictor of aggression than anger. So this raises the issue of whether any of the evidence generated by these personality studies on 'hostility' or 'anger' actually corresponds to a higher level of aggressive behaviour in the 'real world'?

3.1.3 Cognitive processes

In contrast to the research on narcissism, research on the possible cognitive mediators of aggression has tended to look at how individuals interpret *ambiguous* situations. Furthermore, these situations tend to be social and interpersonal in nature. For example, a hypothetical scenario instrument (Crick, 1995) has been regularly utilised amongst children and adolescents in order to assess whether individuals exhibit hostile attribution bias when interpreting the actions of another. The intent of the 'aggressor' in these scenarios is always ambiguous, thus the measure tries to assess how the individual *interprets* an *unclear* interpersonal event. Whilst the use of this scenario instrument has been extensively used with young people, both Blackburn and Lee-Evans (1985) and Serin (1991) also made use of a scenario paradigm to study hostile bias amongst psychopaths. McNiel et al.'s (2003) study of hostile attributional style, on the other hand, utilised a newly developed self-report measure. However, as previously discussed, the content validity of this scale is questionable, with items seeming to more reflect paranoid thinking than hostile outlook.

Hostile attributions represent just one aspect of distorted cognitive processing – that is, to do with interpretation of an event. Other cognitive processes, such as attentional bias and aggressive script activation have been investigated using different measures. A number of these studies have used modified Stroop tasks (e.g. Smith & Waterman, 2003) to illustrate the implicit distortions in information-processing that link to aggression. Other studies have measured reading speed of angry and non-angry endings to a series of ambiguous anger-provoking scenarios and found faster processing speeds for angry relative to non-angry endings amongst those

high on trait anger or aggression (Bond, Verheyden, Wingrove, & Curran, 2004; Wingrove & Bond, 2005). It is argued that the more congruent the story ending is with the participant's own 'script', the quicker they will read the material. This study design enables researchers to measure *implicit* cognitive processes, such as the accessibility of aggressive social scripts and outcome expectancies, on an implicit rather than explicit level.

Research on cognitive processes certainly seems to have made use of more sophisticated and varied methodologies than studies on personality features. It would, therefore, seem prudent to integrate cognitive and personality strands of research not only on a theoretical but also on a methodological level in order to make use of the different design paradigms used in cognitive studies, and increase the generalisability of narcissism studies in particular.

3.2 Populations

Arguably, the biggest limitation to the generalisability of all these studies is the populations investigated. Obviously, the focus of research into violence and mental illness means that the populations investigated are those with psychiatric diagnoses. The following critical discussion applies less to this particular area of research. However, this review has already mentioned the restrictions encountered by focusing too purely on the mental illness, at the expense of other potentially important factors in the prediction of violent behaviour. Perhaps, therefore, the focus has been *too* much on the population and characteristics intrinsic to that.

Within mainstream aggression research, the issue raised by the use of limited populations applies in differing degrees to both personality and cognitive research. Studies on social information-processing mechanisms have focused overwhelmingly on children and adolescents as the population of interest. Meanwhile, research investigating the link between narcissism and aggression has almost exclusively used a student population. The use of such specific populations means that the theories produced have fairly limited generalisability. We can conclude that thinking biases mediate aggressive behaviour in young people, and that narcissistic students demonstrate more hostility when 'threatened'. However, we cannot apply these theories more widely without research being conducted amongst other populations. The conclusions to be drawn from the research on narcissism are even more limited when one considers that the 'ego threat' in virtually all of these studies is related to intellectual ability. Sensitivity to criticism about this skill is arguably quite specific to the population being studied and not necessarily applicable to the 'average' person.

3.2.1 Relevant populations

It seems crucial that, for both cognitive and personality research areas, there is a replication of these studies in different populations. Ward and Siegert (2002) argue that a difficulty with many theories and models is that there is often a lack of attempts to establish their explanatory adequacy. Although Ward and Siegert (2002) were focusing on theories of child sexual abuse when making these comments, they just as much apply to aggression research, where theories exist but there has not been enough combined empirical testing of them. One important aspect to this is for the models to be able to explain a phenomenon in a *meaningful* population. Whilst studies have identified associations between narcissism, certain biases in cognitive

processing, and aggression in specific populations, there have been very few attempts to test out the theories in *clinically relevant* populations – that is, populations for whom aggression is a problem.

There are, of course, some notable exceptions to this. Stucke (2001, 2002) has attempted to extend the findings of lab-based narcissism studies with students, to populations for whom aggressive behaviours are a problem. As previously mentioned, findings include narcissism as a predictive factor in aggressive driving behaviour, as measured by number of violations (Stucke, 2001), and a significant association between narcissism, low self-concept clarity, and mobbing behaviour (Stucke, 2002). Other research has concentrated on distortions of thinking in violent versus non-violent individuals. As discussed earlier in this review, both Smith and Waterman's (2003, 2004) studies suggest significant aggressive bias in the information-processing of offenders. Serin's (1991) study of psychopaths suggests an attributional bias towards interpreting social information from others as signs of hostility. Klass's (1980) findings that psychopaths anticipate experiencing less negative reactions to harming someone they dislike, and see harm-doing as self-congruent behaviour could be argued to fit with the concept of easy accessibility of aggressive social scripts and pro-aggressive solutions to conflict in the habitually aggressive person.

3.2.2 Mentally disordered population

The above summary does suggest that, whilst still in its infancy, researchers are beginning to test some of these key predictors of aggression amongst more relevant populations, particularly research concerned with cognitive bias. However, as

highlighted earlier in this review, few studies have attempted to test out the validity of these predictors of aggression amongst the mentally disordered. Some recent exceptions to this have already been summarised. Arseneault et al.'s (2000) study has begun to point towards the concept that pre-morbid cognitive distortions might be important predictors of violence amongst the mentally disordered. Nestor's review (2002) suggests that research should be considering the role of different personality dimensions in predicting violence amongst the mentally ill. Studies such as these, point towards the need for an integration of research areas in order to see if theories developed in mainstream aggression research can in fact inform us about a high-risk population such as those with certain mental disorders.

McNiel et al.'s (2003) study has attempted to address this and, as previously mentioned, they did find that not only was an aggressive attributional style associated with increased rates of violent behaviour, but that this relationship held up even when psychiatric diagnosis was controlled. This study clearly has some methodological limitations that have already been discussed, however the overarching message to take away from this piece of research is that cognitive style might predict violence *independently* of mental disorder. This really highlights the need for research to consider risk factors other than those intrinsic to the mental disorder itself.

4. Conclusions

The purpose of this review was to consider whether mainstream aggression research might inform us about the relationship between mental disorders and violence. In

order to try to begin to answer this, a number of key areas were addressed – the findings to date regarding the predictors of violence amongst the mentally disordered; the particular concepts within mainstream aggression research that may be useful in helping us to understand violence in this high risk group; and finally, the theoretical and methodological limitations of both areas of research.

It seems clear that there are aspects of mainstream aggression theories that could be usefully applied to the mentally ill population – individual differences such as narcissism, and information-processing biases, in particular. The limitations of mainstream research to date also points towards the utility of testing these theories out in more clinically relevant populations to see if they still have predictive value beyond children and students. It seems therefore that not only could mainstream research help inform us about violence risk amongst the mentally disordered, but that testing these ideas within such a clinical population might help increase the generalisability of these theories about aggression.

Are characteristics identified as important predictors of aggression amongst students, namely narcissism and self-concept clarity, also of predictive value amongst a more clinically relevant population? Can distorted cognitive processes, such as hostile attribution bias and aggressive social scripts, mediate aggressive responses even amongst the mentally disordered? More importantly, can either of these sets of factors predict aggression *independently* of the characteristics associated with the mental disorder itself? Trying to answer these questions is arguably the key task for future research.

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PART TWO

EMPIRICAL PAPER

Predicting Aggression amongst Mentally Disordered Offenders: The role of narcissism, self-concept clarity and aggressive cognitive bias

ABSTRACT

The relationship between the personality constructs of narcissism and self-concept clarity, aggressive knowledge structures and information-processing mechanisms, and aggressive behaviour was examined amongst a sample of mentally disordered offenders. 62 participants completed self-report measures of Narcissism (NPI), Self-Concept Clarity (SCC), and Beliefs about Aggression (EXPAGG). Hostile attributions were measured using a scenario paradigm (SIP-AEQ) and, finally, aggressive outcome expectancies and social scripts were assessed through a computerised Stories Task.

Self-concept clarity was the only significant predictor of both instrumental and expressive beliefs about aggression, and predicted hostile attributions alongside narcissism. Poor clarity was also associated with more accessible aggressive social scripts. However, the only factor associated with aggressive behaviour (as measured by history of violence) was substance misuse. The novel finding that poor concept clarity predicts aggressive cognitive biases in such an aggression-prone population was discussed in terms of both research and clinical implications. The difficulties of measuring aggression in such a population were also discussed.

INTRODUCTION

1. Personality and Aggression

In a seminal review paper, Baumeister, Smart, and Boden (1996) challenged the concept that low self-esteem was a causal factor in aggression. In this paper, and in later empirical work, Baumeister and colleagues introduced the idea that it was conversely those who were narcissistic that were more prone to aggression. They hypothesised that in situations where the high but fragile sense of superiority typical of narcissism is threatened, the individual will respond aggressively towards the perceived source of that threat. This concept has been termed 'threatened egotism' (Bushman & Baumeister, 1998). In a series of studies using a task-failure paradigm in a lab setting, 'threat' was manipulated by asking participants to write an essay which was then 'evaluated' either positively or negatively. The participant was then given the opportunity to aggress towards the 'evaluator' afterwards by way of delivering a blast of noise. It was found that those who were more narcissistic were significantly more likely to respond with high levels of aggression if their work had been negatively appraised. This has been replicated in other experimental studies using the same or similar task-failure paradigms (Rhodewalt & Morf, 1998; Stucke & Sporer, 2002).

Stucke and Sporer's (2002) study in fact extended Bushman and Baumeister's (1998) research by measuring self-concept clarity in addition to narcissism. This construct refers to the extent to which self-beliefs (whatever the content) are clearly defined, consistent and stable, and a lack of clarity has been found to relate to poor

psychological adjustment (Campbell, Assanand, & Di Paula, 2003). Stucke and Sporer (2002) argued that this construct taps into the *fragility* of self-belief that is key in definitions of narcissism. As predicted they found that highly narcissistic individuals who also had low self-concept clarity were the most verbally aggressive post-failure. Furthermore, those who were highly narcissistic but had *high* self-concept clarity showed much lower levels of aggression than their counterparts with low clarity. This suggests that an aggressive response to ego-threat is more likely in those whose inflated self-image is actually rather fragile and changeable.

2. Social-Information Processing and Aggression

The identification of personality types that are more prone to aggression is key, but this does not explain adequately the *processes* that might lead this type of individual from provocation to aggressive act. This is where theories regarding the roles of cognitive structures and processes in aggression may prove key. It has become widely accepted that cognition plays an important mediating role in how the individual interprets provocation, attributes cause and selects a response (Geen, 2001). A large proportion of the research that has helped in our understanding of this area has been guided by the work of Dodge and colleagues. Within a child and adolescent population, they developed a 6-stage model (Crick & Dodge, 1994) to explain the different points at which an individual might process social information in a distorted manner. For example, faulty processing can occur as early as at the 'encoding' phase, where an individual might automatically selectively attend to more aggressive cues in the environment. Whilst the majority of this research has been conducted amongst children, two notable studies investigated adult offenders'

aggressive perceptual bias using an emotional Stroop (Smith & Waterman, 2003) and a visual search task (Smith & Waterman, 2004a), In both cases, a significant attentional bias for aggressively-themed material was found amongst violent compared to non-violent offenders.

A later stage of the model, the 'interpretative' phase, refers to how the individual makes meaning out of the social information. This has been commonly measured using a hypothetical scenario paradigm in order to ascertain how individuals attribute peer intent in social situations. Participants read stories about an unfortunate event taking place and then must decide why they think the 'perpetrator' acted in the way he or she did. It has been consistently found that highly aggressive children and adolescents are most likely to attribute the 'perpetrator's' actions to some purposeful malevolent intent - a tendency that has been termed the 'hostile attribution bias' (Crick & Dodge, 1994).

Again, whilst the vast majority of this research has been conducted amongst children, Copello and Tata (1990) studied aggressive interpretative bias amongst offenders. Participants read sentences that were ambiguous for aggressive meaning. They found that offenders and those high on hostility were more likely to interpret the sentences aggressively compared to controls. Other notable studies of adult populations include Serin (1991) who, utilising a scenario paradigm, found that psychopaths were more likely than non-psychopaths to interpret the 'perpetrator's' actions in the vignette as malevolently-motivated. A more recent study has also employed a scenario paradigm adapted from that used in studies by Crick and colleagues. Coccaro (2004) found that participants with intermittent explosive disorder were significantly more likely to

show hostile attribution bias in interpreting the social information than controls. Finally, McNiel, Eisner, and Binder (2003) found a 'hostile thinking style', as measured by a self-report questionnaire, amongst violent psychiatric patients even when diagnosis was controlled for.

Finally, studies have shown that bias occurs in the end stages of information-processing, in terms of the 'outcome expectancy' of using aggression. Children with symptoms of conduct disorder, for example, have been found to favourably evaluate the use of an aggressive response in ambiguous situations (Dodge, Pettit, Bates, & Valente, 1995). Furthermore, adults high on anger and trait aggression show faster reading speeds for angry endings to hypothetical stories, suggesting that these are more congruent with their outcome expectancy (Wingrove & Bond, 2005; Bond, Verheyden, Wingrove, & Curran, 2004).

3. Stable Knowledge Structures and Aggression

These particular studies suggest that aggressive individuals develop internal schema about the appropriateness of aggression in certain situations. Huesmann (1988) has argued that habitually aggressive people, based on cumulative aggressive experiences, do build up complex aggressive belief systems or "social scripts". As such, the more aggression is chosen and implemented as a solution, the more aggressively biased processing will occur in future events. Certainly Zelli, Dodge, Lochman, and Laird (1999) demonstrated in longitudinal studies of children that pro-aggressive beliefs or scripts predicted biased processing one year on, and more aggressive behaviour two years later.

Other research has further distinguished between *types* of beliefs (expressive or instrumental) and their relationship to aggression. 'Expressive' refers to seeing aggression as 'loss of control', and 'instrumental' refers to regarding aggression as a means of 'gaining control' (Campbell, Muncer, & Coyle, 1992). Studies amongst children have suggested that these differences can also be found on a behavioural level and differentially associated with biased information processing. Instrumentally aggressive children had more pro-aggressive outcome expectancies whilst expressively aggressive children demonstrated more hostile attributions (Crick & Dodge, 1996). In adult populations, it has been found that instrumental beliefs are associated with self-reported aggression amongst male and female prisoners (Archer & Haigh, 1997b), and with violent index offence amongst prisoners (Smith & Waterman, 2004b).

Linking back to the final stages of Crick and Dodge's model (1994), it would seem that these more internalised constructs are drawn upon when an individual is trying to interpret and make meaning out of an event. In aggressive individuals, these belief systems are easily activated in social situations to determine behaviour, and often more relied on than any current situational cues (Dodge & Tomlin, 1987). This point has also been demonstrated in a study that asked adult participants to write continuing sentences to stories depicting an aggressive encounter. The story ending either condemned or condoned the use of aggression. Those high on trait aggressiveness were more likely to write aggressive follow-on sentences even when the story ending had condemned the use of aggression (Bond, Bauer, & Wingrove, 2004). This suggests that once activated in those more prone to aggressiveness, the

aggressive 'social script' was used to determine action, irrespective of other information.

4. Current Status of Research

It is clear that both the personality and cognitive strands of aggression research have offered important ideas about the correlates of aggression. However, a number of issues still need to be addressed. Firstly, there is a distinct lack of integration of these areas of research on a theoretical and empirical level. There are relatively few studies that have investigated the combined roles of both personality and cognitive factors in predicting aggression, despite the development of more cohesive models of aggression, such as the General Aggression Model (Anderson & Bushman, 2002). Authors such as Bushman and Baumeister (1998), for example, concluded that highly narcissistic individuals respond to threat aggressively because they want to apply punishment and re-establish high self-esteem by demonstrating their superiority. However, this is a speculative claim, as no study to date has actually investigated the attributions or interpretative processes that mediate the relationship between narcissism and aggression. Likewise, cognitive studies on attributional style and social information processing have rarely considered the role of personality factors in their theories.

Having disparate rather than cohesive models of aggression clearly limits the generalisability of the theories. This disparity is also reflected in study design. It would seem that cognitive and personality areas of research operationalise and measure aggression in markedly different ways. Narcissism and self-concept clarity

research, for example, look at aggression in terms of responses to a clear 'threat'. However, it is apparent that in the 'real world', aggressive responses are not always the result of a direct challenge and this, arguably, limits the external validity of these studies' conclusions. However, cognitive research tends to look more at aggressive or hostile responses in *ambiguous*, social situations.

Furthermore, in the narcissism/self-concept clarity field, virtually all the studies utilise a similar 'task-failure' experimental paradigm where the 'threat' is related to intellectual ability. This again limits the conclusions to be drawn because it is a very specific trigger which may only be relevant to the academic student populations studied and not necessarily to other groups. However, cognitive research seems to have made use of more varied and sophisticated methodologies. Hypothetical scenario instruments have been regularly used to measure hostile attributions (e.g. Crick, 1995; Serin, 1991) whilst other studies have used instruments to measure processing on a more implicit level, such as reading speed of aggressive story endings as an indicator of outcome expectancy (Bond, Bauer, et al., 2004).

These issues suggest that the different areas of research are arguably investigating different forms of aggression. In the personality studies, aggression is measured as a function of how much the individual blasts a noise or level of verbal attack in response to a challenge. In cognitive studies, on the other hand, aggression is measured as a trait, an anti-social behaviour (e.g., Zelli et al., 1999), or even an act of violence (Smith & Waterman, 2004b). Donnellan, Trzesniewski, Robins, Moffitt, and Caspi (2005) argue that the mild retaliatory display of aggression shown in narcissism studies may, therefore, have different correlates to the more anti-social

and harm-doing aggression of cognitive studies. In order to increase the generalisability of theories about narcissism and self-concept clarity it would, therefore, seem prudent to operationalise and measure aggression in different ways, as has been done in cognitive studies.

5. Relevant Populations

However, the most problematic issue for both these areas of research is the limited populations that have been investigated. Research on aggressive cognitive processing and knowledge structures have focussed overwhelmingly on children and adolescents. Meanwhile, research investigating narcissism and self-concept has almost exclusively used a student population. These theories are therefore weakened by their lack of generalisability to other populations and, more crucially, suffer from a lack of application to *clinically relevant* populations.

A key area, for example, where these theories could be usefully applied is in helping to explain increased risk for violence amongst the mentally disordered population. The increased risk amongst this population is due to the behaviour of a small percentage of sufferers and mental illness per se represents a modest risk factor when compared with other risk factors, such as gender, age, and socio-economic status (Walsh, Buchanan & Fahy, 2002). A key task of research, therefore, has been to identify the factors that increase the risk for violence in this small subgroup.

Certainly, some risk factors have already been established – for example, schizophrenia-spectrum disorders pose an increased risk compared to other

diagnoses, and this rises by more than two-fold if there is co-morbid substance misuse (Arseneault, Moffitt, Caspi, Taylor, & Silva, 2000; Moran, Walsh, Tyrer, Burns, Creed, & Fahy, 2000). However, this does not explain why only *some* people with schizophrenia are likely to be violent. Other lines of research have, therefore, focussed on features of the disorder itself – in particular the content of delusions (Link & Stueve, 1994). However, the evidence that certain delusional content (such as perceiving others as a 'threat') can discriminate between violent and non-violent psychiatric samples is equivocal. Furthermore, a recent study by Appelbaum, Clark-Robbins, and Monahan (2000) found that delusions per se were not associated with increased violence risk.

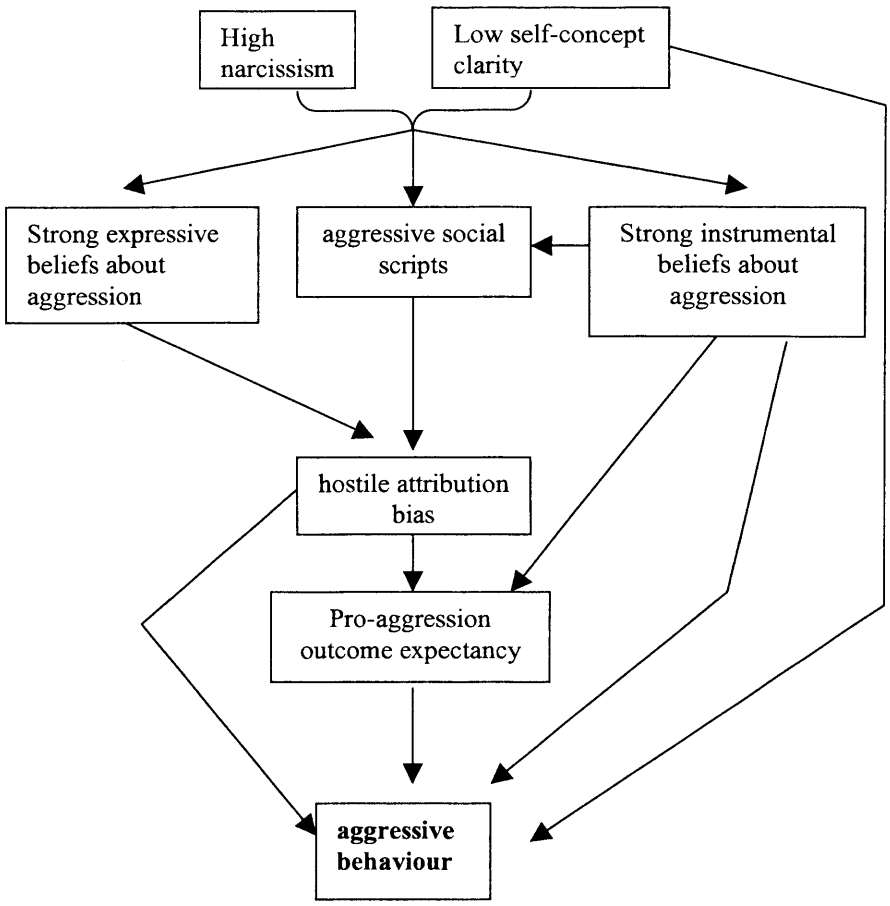
What is apparent is that the study of aggression within a mentally ill population has virtually ignored the potential explanatory utility of theories from *mainstream* research that have been outlined earlier. This is despite the fact that, in a handful of studies, some of these concepts have been shown to be predictive of aggressive behaviour. Johnson et al. (2000), for example, found that, along with paranoid and passive-aggressive, *narcissistic* features of personality during adolescence corresponded to a greater likelihood of violence in early adulthood, even when the Axis I condition was controlled for. Other studies mentioned earlier, such as Serin's (1991) study of psychopaths, and McNiel et al.'s (2003) study of psychiatric patients have considered thinking styles and demonstrated biases akin to hostile attribution error amongst the mentally disordered and that, as with 'normal' populations, these are related to increased aggression.

6. Summary and Aims

It is clear that mainstream aggression research has provided some important ideas to help further our understanding of aggression. However, developments have been hampered by the lack of integration between theoretical fields and, moreover, by the lack of application of these concepts to clinically relevant populations, such as those with mental illness who are prone to violence. Key constructs identified that may be able to help us understand aggressive behaviour in this group are personality features such as narcissism and self-concept clarity, latent knowledge structures, such as aggressive social scripts, and social information-processing mechanisms, such as attributional bias. The design limitations identified particularly in personality-aggression research points towards integrating the research on this level too and making use of the varied methods utilised in cognitive research.

The purpose of the present study, therefore, is to examine the relationships between personality factors (narcissism and self-concept clarity), aggressive beliefs and social scripts, information-processing mechanisms (hostile attributions, aggressive outcome expectancies), and aggressive behaviour (type of index offence, history of violent behaviour). Figure 1 is a hypothesised model of how these factors might interact to result in heightened aggressive behaviour.

Figure 1: Hypothetical model of personality-cognition-aggression process



Some of these proposed interactions are based on previous research findings and, therefore, five specific hypotheses could be made:

1) Following Stucke and Sporer (2002), high narcissism and low self-concept clarity will be associated with aggressive behaviour.

2) Following Crick and Dodge (1996), expressive aggression beliefs will be associated with hostile attributions.

3) Following Crick and Dodge (1996), instrumental beliefs will be associated with aggressive social scripts and outcome expectancies.

4) Following Archer and Haigh (1997a,b), instrumental beliefs will also be associated with aggressive behaviour.

5) Following Crick and Dodge (1994, 1996), hostile attributions will be associated with higher negative emotional response (to attribution task), and aggressive behaviour.

No specific predictions were made about the associations between the 'personality' factors, aggressive knowledge structures, and social-information processing mechanisms as these interactions have not been addressed in previous research. However, the proposed model suggests how they might relate to other factors.

Additionally, whether the relationships between diagnostic factors and aggression might be found in a small-scale study and, if so, to what extent they might explain violence risk was also explored. The factors considered were schizophrenia diagnosis, additional personality disorder (not schizoid), and substance misuse history.

METHOD

Overview

A cross-sectional design was used with self-report scales measuring personality and beliefs. A hypothetical scenario task measured attributions, and a computer task was employed to measure both implicit and explicit aggressive social scripts and outcome expectancy.

1. Participants

Participants were 62 mentally disordered male offenders, recruited from both a regional and a local secure unit within the London area. Both men and women are contained in these units but due to the small number of women (<10%) and the fact that previous work suggests there may be gender differences in relation to aggression (e.g. Smith & Waterman, 2004b), it was deemed appropriate to only include men. The majority of patients were contained in these units following conviction for an offence, although some were detained awaiting trial. All were diagnosed as suffering from an Axis I mental disorder as defined by the Diagnostic and Statistical Manual of Mental Disorders (4^{th} ed; DSM-IV; American Psychiatric Association, 1994).

To be eligible for participation in the study, patients had to be (1) aged between 18 and 65 years, (2) male, (3) able to read English at a basic level, and (4) sufficiently mentally stable to take part in a research project (as decided by the Responsible Medical Officer and Ward Staff Nurse). On the basis of these criteria, 142 patients

out of a total of 189 (75.1%) were deemed eligible to participate in the study by the Responsible Medical Officers (RMO). The second level of decision-making was made by the ward nurses. On entering a ward to approach patients, opinion would be sought from the ward nurse as to whom was deemed *not* well enough to be approached for research, over and above the list provided by the RMO. A further 21 patients were excluded from the study at this stage, leaving a total of 121 eligible patients. Between August 2004 and March 2005, the eligible patients were approached by the researcher. Of the final 121 patients deemed able to take part, 67 (55%) voluntarily participated in the research. However, five of these patients withdrew from the study before completion, resulting in a final sample of 62 (51.2% of eligible patients).

2. Ethics

This research project had been reviewed and approved by the Local Research Ethics Committee (see Appendix A). Participants gave written informed consent before taking part in the research. It was also made clear that participants could withdraw from the study at any time. They were paid £5 for their participation. (Copies of the Information Sheet can be found in Appendix B).

3. Procedure

Initially, the Responsible Medical Officer (RMO) for each patient was approached and explained the protocol for the project, including the inclusion and exclusion criteria. They were then asked to provide a list of patients they felt should *not* be

approached for this study. On entering a ward, the researcher liased with the staff nurse to ascertain any further patients that he or she felt were too unwell to be approached for the study. The remaining patients were given information sheets explaining the study and allowed 24 hours to consider participation.

Patients who agreed to take part met with the researcher on one occasion on the ward to complete the testing. The researcher gave instructions about completing each of the questionnaires and then allowed the participant to complete the battery of measures himself. Instructions were then given for completing the computerised Stories task in which the participant read 36 short stories about different people from the computer. The participant was instructed that for half the stories the computer would ask him to think what the character might do next. He was then to state aloud a possible continuing sentence for the story, which the researcher would write down. The participant was asked to just read the remaining stories without offering a sentence.

On completion of testing each participant was debriefed and informed that the results of the study would be made available to him. Completion of testing took, on average, 1.5 hours per participant dependent on reading speed and ability to concentrate.

Basic demographics, information regarding index offence, history of offending, and clinical diagnoses were then obtained from the participant's medical notes.

4. Measures

Three self-report questionnaires were administered to participants that measured narcissism, self-concept clarity and beliefs about aggression (see Appendix C). A hypothetical scenario task was administered to measure hostile attribution bias (see Appendix C). The final task to be administered was a computerised instrument measuring accessibility of aggressive social scripts and outcome expectancies (example story in Appendix D). Originally, the State-Trait Anger Expression Inventory (STAXI: Spielberger, 1988) was also included in this battery as a measure of state and trait anger. However, its inclusion made the testing process too lengthy for the participants. A balance needed to be made between obtaining data and allowing participants to maintain concentration and reduce any distress caused by 'over-testing'. It was therefore decided to remove the STAXI.

4.1 Narcissism

Narcissism was measured using the Narcissistic Personality Inventory (NPI: Raskin & Terry, 1988). This is a 40 item self-administered measure that is answered on a 5-point scale (1= not at all to 5 = very much). A sample item from the scale is "I have a natural talent for influencing people". Scores reflect degree of narcissistic characteristics on a continuum where the higher the score, the more narcissistic the individual. Originally this measure was designed using a dichotomous response format, however it has since been adapted for use in a scale format by Stucke and Sporer (2002) in order to fit with the response format of other trait measures, such as self-concept clarity (see below).

The NPI was originally constructed based on DSM-III-R criteria for narcissistic personality disorder. However, the scale is not a diagnostic tool, but does provide an index of degree of narcissism spanning from pathological through to less extreme forms reflecting narcissism as a personality trait (Emmons, 1987). Raskin and Terry (1988) have found considerable evidence of the NPI's internal consistency (alphas ranged from .80 to.86 across studies) and construct validity with significant correlations found with other measures of narcissism, such as the narcissistic subscale of the Millon's Clinical Multiaxial Inventory (MCMI, Millon, 1982).

4.2 Self-Concept Clarity

Definitions of narcissism tend to emphasise the idea that this construct not only includes an extremely positive but also a somewhat fragile self-view. However, Stucke and Sporer (2002) have argued that this aspect of the construct is not sufficiently covered by the NPI and included an additional measure of fragility of self-view in their study – the Self-Concept Clarity scale (SCC; Campbell, Trapnell, Heine, Katz, Lavallee & Lehman, 1996). This self-report measure consists of 12 items on a 5-point scale (1 = strongly agree, 5 = strongly disagree) where a higher score points to a greater level of clarity about the self-view. A sample item from the scale is "My beliefs about myself often conflict with one another". Campbell et al. (1996) found this scale to have good internal reliability (Cronbach's Alpha = 0.86) and construct validity, in terms of its correlation with measures of self-esteem (average r=0.61).

4.3 Beliefs about Aggression

The Expressive Aggression Questionnaire (EXPAGG: Campbell et al., 1992) measures individual conceptualisations about the use of aggression. Research has suggested that people may differ in the extent to which they see their own aggression as an instrumental or an expressive behaviour. The distinction is, in brief, that a more expressive representation suggests regarding aggression as a loss of control, whereas to view aggression instrumentally is to see it in terms of gaining control over someone or something. Studies have predominantly investigated this phenomenon in relation to distinctions between men and women's views of aggression (Campbell et al., 1992; Archer & Haigh, 1997a). However, a small number of studies have suggested that elevated instrumental scores can predict higher levels of self reported aggression (Archer & Haigh, 1997b) and violent offending (Smith & Waterman, 2004b).

In its original form, this was a 20-item measure using a dichotomous response format (Campbell et al., 1992). Archer and Haigh (1997a) developed a revised version of the measure containing 40 items that measured both expressive and instrumental beliefs via a 5-point Likert scale (1= strongly agree through to 5= strongly disagree). Low scores therefore indicate a strong expressive or instrumental belief. This version of the measure has been used in a number of studies (e.g., Archer & Haigh, 1997b; Smith & Waterman, 2004b) and yielded good internal consistency (alphas ranging from .70 to .91). The most recent version of this measure has been reduced to 16-items (Campbell, Muncer, McManus, & Woodhouse, 1999). Half of the items measure expressive beliefs (e.g. 'During a physical fight I feel out of control') and the other half measure instrumental beliefs (e.g. 'I believe that physical aggression is

necessary to get through to some people'). Campbell et al. (1999) have suggested that this latest version of the questionnaire is two-dimensional with a correlation between the items measuring instrumental and those measuring expressive aggression of just –0.02. This, in effect, means that the two scales are virtually independent and, as such, they can be simultaneously compared and contrasted.

4.4 Hostile Attribution Bias

Hostile attribution bias was measured using the newly developed Social Information Processing-Attribution Emotion Questionnaire (SIP-AEQ; Coccaro, 2004). This measure is based on Dodge (1980) hypothetical-situation instrument designed to measure intent attributions and related distress amongst children and adolescents. Dodge's measure has been used extensively amongst young people and the relationship found between hostile attribution bias and aggression amongst this population using this methodology is quite robust (see Crick and Dodge, 1994 for a review). Internal reliability for Dodge's (1980) measure of hostile attribution tends to be average to good (Cronbach's alpha of between .65 and .86 dependent on study). However, the present version is an adaptation of this measure for use amongst adults. Preliminary studies conducted by Coccaro (2004) on over 800 adults suggest good concurrent validity of the measure with significant correlation between hostile attributions and self-reported aggression ($r = .36$, $p<.001$). Excellent internal consistency across stories was found for hostile attribution items in this sample (Cronbach's alpha = .90).

The instrument consists of ten stories depicting social interactions where there is a negative outcome for the main character but the intent of the antagonist is

ambiguous. Each story is followed by a question asking the participant to rate the likelihood, on a 0-3 Likert scale, of each of four possible reasons for the provocation (0 = 'not at all likely' to 3 = 'extremely likely'). Two of the four reasons represent hostile attribution, one reflects instrumental attribution, and the final reason represents benign attribution. The final two questions after each scenario ask the participant to rate the likelihood that they would be a) 'angry' and b) 'embarrassed' if the incident had happened to them. These questions are designed to assess the participant's emotional response in such provocation situations. A mean score is obtained for each type of attribution and emotional responses across stories.

4.5 Aggressive Outcome Expectancies and Social Scripts

The extent to which participants hold aggressive outcome expectancies and aggressive social scripts in social behaviour situations was measured using a computerised Stories Task (Bond, Bauer, et al., 2004). This instrument presents 36 stories on a computer screen, each six to nine sentences long. Each story is about a different character whom the participant is instructed to try and identify with. The name of the character appears on the screen first and the participant is then instructed to press the space bar to get the first sentence of the story. The participant reads the sentence and presses the space bar again to get the next sentence, and so on. Following half the stories, a question appears asking the participant to decide what he thinks the character does next. The participant is then required to think of a following sentence for the story, which the researcher writes down.

Eighteen of the stories describe a provocation situation and, within this, twelve describe a direct provocation where the main character reacts aggressively. For six of

these stories, a negative outcome to this display of aggression is described (i.e. the aggressive response is not endorsed). For the other six stories, a positive outcome to the aggressive response is shown (i.e. aggression is positively regarded). Another six stories describe ambiguous provocation with no response from the character, in order to reduce the likelihood that participants might anticipate an aggressive response. The remaining eighteen stories are neutral. The stories cover different 'types' of aggression (verbal, physical), different 'targets' for aggression (partner, stranger) and different 'directions' of aggression (male on male, male on female, female on male).

The first objective is to compare each participant's reading times for the sentences that describe pro- and anti-aggression story outcomes (judged by the time taken to press the space bar for the next sentence). A second objective is to examine the follow-on sentences written by participants by rating them for aggressive content. The reading times and follow-on sentences for aggressive stories can also be compared based on the different categories of story ('type', 'target', 'direction').

Two alternative endings (pro- or anti- aggression) for each of the aggressive stories were produced and an example of an aggressive reaction story with the alternative (pro- and anti-aggression) endings is shown in Appendix D. Having two possible endings to each story meant that two complementary sets of stories could be created (set A and B). Half the participants in the study read set A and the other half set B. If no differences were found between set A and B, then the results from both would be combined. Administering two alternate versions of the task was done as a form of counterbalancing, in order to be able to say that (when combined) differences found

related to the negativity or positivity of the story ending, rather than the actual story itself.

However, when the mean reading times (in milliseconds) for subjects given the two versions of the task were compared, a significant difference was found for the anti-aggressive story endings (ANTI-A), with subjects reading set B taking significantly longer to read these sentences ($t(58)=-2.664$, $p=0.01$). On examination of the distribution of these scores, three outliers were identified and their removal reduced the mean reading time. Scores for subjects given the two versions of the task were compared on all other measures and no differences approaching significance were found. The two sets were therefore combined to produce a pro-aggressive and an anti-aggressive outcome mean reading time across the sample. The ratings for the aggressive content of follow-on sentences were compared across sets A and B of the stories and no significant differences were found, therefore, the data was combined.

4.6 History of Violence

Previous offence history was ranked for degree of violence from 0 to 4, according to Gunn and Robertson (1976) scale. A score of 0 indicates no offending history; 1 = minimal acts of aggressive behaviour that are relatively non-serious in nature (e.g. occasional fight and / or property damage); 2 = 1 to 2 acts of violence that resulted in injury / more serious damage; 3 = 3 to 5 violent incidents and / or convictions; 4 = repeated acts of and convictions for violence. This variable could then also be analysed as a dichotomous variable with 0-1 on the scale as 'non-violent', and 2-4 as 'violent'.

RESULTS

Outline

Data was analysed between groups (violent vs. non-violent) using t-tests and within groups using Spearman's Rho correlation and multiple regression analyses.

The results for the present study are provided in the following sections:

1) description of the sample
2) preliminary exploration of the data
3) main hypotheses testing
4) analysis of the follow-on sentences (stories task)

1. Description of the Sample

To achieve adequate statistical power, a sample size of 68 is recommended for the present study. A sample size of 62 was achieved. The mean age of participants was 39 years (ranging from 21 to 61 years). All participants were suffering from an Axis I mental disorder, according to DSM IV criteria (DSM IV, 1994). The diagnoses, as stipulated in the medical notes, were as follows: 46 (74%) schizophrenia; 9 (15%) schizoaffective disorder; 4 (7%) bipolar disorder; 3 (5%) delusional disorder.

Within this sample, 16 (26%) had additional Axis II personality disorder diagnoses. These personality disorders were classified, (according to DSM IV criteria, 1994), as schizoid (6; 10%); borderline (4; 7%), and psychopathic (6; 10%). Furthermore, 35 (57%) of the sample were reported to have substance misuse problems.

The nature of index offence (the crime for which the individual is currently sectioned) varied across the sample. 9 (15%) participants had committed murder or manslaughter; 10 (16%) Wounding with Intent; 19 (31%) Grievous Bodily Harm / Actual Bodily Harm; 10 (16%) indecent / sexual assault; 9 (15%) arson; 5 (8%) burglary. 25 (40%) of participants were judged to have no or very minimal history of violent behaviour versus 35 (57%) judged to have history of violent behaviour (2 missing data).

2. Preliminary Exploration of the Data

2.1 Stories Task – Reading Times

Once outliers were removed, set A and B of the stories were combined to produce a pro- and anti- aggression reading time for each participant. The overall mean reading time for the sentences describing pro-aggression story outcome was 3900.66 msecs and 3678.83 msecs for the anti-aggression ending sentences. Subjects were significantly quicker in reading the sentences describing anti-aggression story endings ($t(55) = 2.27$, $p=0.03$).

2.2 Normality of Distribution

Distributions of means for each measure were examined for normality. Tests of skewness and kurtosis were not significant. Using the Kolmogorov-Smirnov test, distributions were found to be normal except for 'expressive beliefs' scale on the EXPAGG (Kolmogorov-Smirnov $Z = .147$, $p=.005$), suggesting that this data's distribution does deviate from normality. However, in light of the histogram showing a fairly normal distribution and the high sensitivity of this test, no adjustments to the

data were made. There was also a significant result for 'benign attribution' on the SIP-AEQ . However, as this score is not of primary interest in this study (the focus is on hostile attribution), no adjustments were felt necessary.

2.3 Psychometrics of Measures

Alpha reliability coefficients for each of the questionnaires were calculated. Cronbach's alpha for the NPI was .96 and .83 for SCC scale, suggesting good internal consistency on both measures.

Following Campbell et al. (1999), the EXPAGG was treated as two separate scales, and obtained alphas of .86 / .82 (instrumental / expressive scales). However, unlike Campbell et al. (1999), the present study found a significant correlation between the two scales ($r = .66$, $p < .001$). Furthermore, the reliability coefficient was higher when the two scales were combined (alpha = 0.90).

The reliability coefficients for SIP-AEQ (Coccaro, 2004) show good internal consistency for the 'hostile' attributions items (alpha = .88), but only average for 'instrumental' (.64) and poor consistency for 'benign' attributions (.58). Furthermore, in contrast to Coccaro's (2004) findings, there was a significant correlation in the present study between 'hostile' and 'instrumental' attribution scores ($r = .49$, $p < .001$). Considering these issues and the fact that this study is investigating 'hostile' attributions, the other two categories of attribution were not considered in any further analyses.

Similarly to Coccaro's (2004) study, the present investigation found a significant correlation between the two Negative Emotional Response (NER) variables ($r=.49$, $p<.001$). Following Coccaro (2004), these two variables were combined into one NER factor and, as such, produced an alpha of .93. However, in light of the present study's focus on aggression, the 'anger' NER was also considered as a separate variable (alpha = .92).

2.4 Descriptive Data

Table 1 shows the means for each measure in relation to whether the participant had a history of violence or not.

Table 1: Scores for self-report measures and Stories task

Measure	Violent History Status		
	Violent (n=35)	Non-Violent (n=25)	t (df=58)
NPI	104.86 (33.75)	97.60 (30.68)	-.85
SCC	41.52 (10.54)	42.67 (9.26)	.42
Instrumental Beliefs (EXPAGG)	27.71 (8.39)	28.76 (7.21)	.50
Expressive Beliefs (EXPAGG)	25.65 (8.79)	25.32 (6.50)	-.16
Hostile Attribution (SIQ-AEQ)	12.43 (5.95)	12.26 (5.01)	-.12
NER (on SIQ-AEQ)	14.76 (7.70)	18.30 (5.77)	1.9
'Anger' NER (SIQ-AEQ)	15.03 (8.66)	18.80 (6.52)	1.84
PRO-A (Stories Task) (msecs)	4017.77 (1039.26)	3972.21 (1309.82)	-.15
ANTI-A (Stories Task) (msecs)	4016.56 (1364.49)	3473.09 (1070.35)	-1.62

There were no significant differences found between those who did and did not have a history of violent behaviour on any of the measures. Furthermore, comparisons of mean scores in relation to Index Offence category revealed no significant differences. Considering this latter finding, and the fact that only 5 (8%) of the sample could actually be classified as having committed a *non*-violent offence (burglary), it was decided that this factor could not be used as a measure of aggressive behaviour and was, therefore, excluded from further analyses.

3. Main Hypothesis Testing

Both correlation and regression analyses were performed on the data to explore the relationships between personality, cognitive, information-processing, and aggression variables and test out the hypotheses.

3.1 Associations between Personality, Cognitive and Aggression Factors

Associations between the various personality, cognitive, information-processing, and aggression factors were initially explored using correlation analyses and the results are shown in Table 2. As 'history of violence' for this part of the analyses was measured as ordinal data, Spearman's Rho was used to measure strength of association.

Table 2 – Associations between personality, cognitive and aggression factors

Scale	2	3	4	5	6	7	8
1. Violent History	.036	-.186	-.064	-.097	.154	.057	.157
2. NPI	—	-.328*	-.093	-.303*	.315*	-.089	-.010
3. SCC	—	—	.455**	.514**	-.524**	-.273*	-.172
4. Expressive Beliefs	—	—	—	.587**	-.240	-.305*	-.225
5. Instrumental Beliefs	—	—	—	—	-.473**	-.367**	-.277*
6. Hostile Attributions	—	—	—	—	—	.160	.121
7. PRO-A	—	—	—	—	—	—	.779**
8. ANTI-A	—	—	—	—	—	—	—

*= $p<0.05$, ** = $p<0.01$
NB: A lower score on EXPAGG indicates stronger beliefs.

In the context of this study's hypotheses, the correlations show the following:

- Contrary to hypothesis two, stronger instrumental rather than expressive beliefs are associated with more hostile attributions

- In support of hypothesis 3, stronger instrumental beliefs are associated with longer reading times for anti-aggressive reading times, but are also associated with longer reading times for pro-aggressive story endings. This association is also significant for stronger expressive beliefs.

In relation to the aim of exploring personality, beliefs, and social-information processing mechanisms, correlations found show:

- High narcissism is associated with stronger instrumental beliefs about aggression and with more hostile attributions

- Low self-concept clarity is associated with stronger instrumental and expressive beliefs, more hostile attributions, and a longer reading time for pro-aggressive story endings.

The measure of aggressive behaviour (history of violence) was not associated with any other variables.

3.2 Association of Diagnostic Factors with Aggression

This study also aimed to explore the relationship of Axis I diagnosis, personality disorder and substance misuse to aggressive behaviour. However, 55 (89%) of the sample were diagnosed with some form of schizophrenic disorder and, therefore, with such a homogenous sample (in terms of mental disorder), it was not possible to investigate whether diagnosis might be differentially associated with aggressive behaviour. This was also the case with personality disorder (PD). Only 16 (26%) had an additional PD diagnosis and, within that, only 10 of the sample had disorders that have been associated with aggression in past studies (see Berman, Fallon, & Coccaro, 1998). This number was too low to consider for statistical analyses.

However, substance misuse was significantly associated with violent history ($\chi^2(1) = 5.520$, $p=0.02$). This suggests that participants who had a history of misusing substances were significantly more likely to have a history of violent behaviour, than those with no reported drug or alcohol problems. Substance misuse was not related to any other measure in this study.

3.3 Predicting Aggressive Beliefs and Social-Information Processing

The previous section suggests that substance misuse is the only correlate for this study's objective measure of aggression (history of violence). However, correlations were shown between the personality factors, aggressive beliefs and hostile attributions that will now be further explored using a series of regression analyses. Personality factors were entered as predictors in accordance with both Crick and Dodge (1996) and Zelli et al. (1999) who suggest that these more permanent aspects of the self precede social information-processing. The following regressions are, therefore, considering whether narcissism and self-concept clarity can predict aggressive beliefs and information-processing bias. As contradictory results (aggressive beliefs associated with *both* pro and anti aggressive stories) were found for reading times as an indicator of aggressive social scripts in relation to the other variables, these were not entered into the regressions.

According to Cohen and Cohen's recommendations (1983), all means were converted to z-scores prior to the regression analyses in order to reduce multicollinearity and to facilitate interpretation of coefficients.

3.3.1 Predicting expressive beliefs

As narcissism was not correlated with expressive beliefs, a univariate regression was conducted with self-concept clarity as the predictor. The regression was significant ($F(1,53) = 12.68$, $p=.001$) with self-concept clarity explaining 17.8% of the variance in expressive beliefs (adjusted $R^2 = 0.178$).

3.3.2 Predicting instrumental beliefs

For this second regression, following Stucke and Sporer (2002), a stepwise method was used, with main effects for the predictors entered in the first step of the regression equation, and the second step considering two-way interactions between the predictors. This method allows the investigation of whether it is the interaction of high narcissism with low self-concept clarity that holds the most predictive power (as found in Stucke & Sporer, 2002).

Using this method, a significant model emerged ($F(1,54) = 17.33$, $p<0.001$) explaining 22.9% of the variance in instrumental beliefs (adjusted R square = 0.229). The only significant predictor in this model was self-concept clarity (beta = .49, $t(54)= 4.16$) and no significant interactions between variables were found.

3.3.3 Predicting hostile attributions

The stepwise method was employed with 'personality' factors entered on the first step, and instrumental beliefs entered on the second step. A significant model emerged $F(2,53) = 11.035$, $p<0.001$) that explained 26.7% of the variance in hostile attribution scores, with both personality variables significant predictors (self concept

clarity: beta = -.435, t(53) = -3.68, p=0.001; Narcissism: beta = .241, t(53) = 2.04, p=0.05). Instrumental beliefs did not add any predictive power to this model.

3.4 Predicting Anger in Attribution Task

In order to investigate whether hostile attributions predict 'anger' scores on the AEQ-SIP (part of hypothesis 5), instrumental, benign and hostile attribution scores were put in as predictors into a regression using the enter method. A significant model emerged (F(3,58) = 4.09, p=0.01) explaining 13.2% of the variance in anger response. Hostile attribution emerged as the only significant predictor (beta = .44, t(58) = 3.18).

4. Investigation of Subject-Generated Sentences on Stories Task

Participants also wrote continuing sentences to stories which were rated for degree of aggressive content. This task corresponds to the later stages of Crick and Dodge's information-processing model (1996) by demonstrating how accessible aggressive social scripts are and aggressive response selection (see Bond, Bauer, et al, 2004).

4.1 Descriptives

Table 3 shows the mean ratings for the sentences based on, firstly, whether the story was aggressive, neutral or ambiguous; secondly, within the aggressive stories, whether the story ending was pro or anti-aggressive; thirdly, each category of aggressive stories ('type', 'target', 'direction'). Ratings were from 0-4, with 4 suggesting highly aggressive content.

Table 3 - Aggressive content of follow-on sentences

Story		Ratings	Statistical Test
Story Content	*Aggressive*	1.74 (0.65)	F(1,59) = 343.94,
	Neutral	0.07 (0.12)	p<0.001
	Ambiguous	0.94 (0.68)	
Aggressive Story Ending	*Pro-aggressive*	1.98 (0.67)	T(59) = 4.42, p<0.001
	Anti-aggressive	1.51 (0.86)	
'Type' of Aggression	*Verbal*	1.74 (0.96)	T(60) = 1.24 p=.22
	Physical	1.95 (1.04)	
'Target' of Aggression	*Partner*	1.77 (0.75)	T(60) = .12 P=.92
	Stranger	1.75 (0.93)	
'Direction' of Aggression	*Male on male*	1.95 (1.04)	F(1,59) = 405.45 P<0.001
	Male on female	1.58 (1.39)	
	Female on male	1.69 (0.79)	

Table 3 illustrates that there was a significant effect of the 'content' of the story. Bonferroni post-hoc test identified that the sentences following 'aggressive' stories were rated as significantly more aggressive in content than those following ambiguous or neutral stories (aggressive vs. neutral: t(59)=20.19, p<0.001; aggressive versus ambiguous: t(59)=8.57, p<0.001). Within the aggressive stories, the sentences following 'pro-aggressive' stories were rated as significantly more aggressive than 'anti-aggressive' story sentences. Whilst there was a significant effect of 'direction' of aggression on the aggressive content of follow on sentences,

post hoc tests did not find that this difference was significant sentences, post hoc tests did not find this significance to be between specific pairs. There were no significant differences in ratings found for other categories of aggressive story (type, target).

4.2 Associations with Personality, Beliefs, and Hostile Attributions

Using Spearman's Rho correlation, relationships between the aggressive content of follow-on sentences and measures of personality and cognitive processes were investigated. Although measures of self-concept clarity, narcissism, hostile attribution, and beliefs about aggression were all entered into the correlation, Table 4 just shows the significant associations.

Table 4 – Correlations between sentence ratings following different categories of stories and other self-report measures

	Measure	
Category of Story	SCC	Hostile Attribution
Aggressive	-.336*	.195
Anti-A Ending	-.322*	.090
'Physical' A	-.304*	.281*
'Stranger-targeted' A	-.315*	.247
'Male on male' aggression	-.304*	.281*

*p<0.05

The analyses show the following associations:

- Across all the aggressive stories, more aggressive follow-on sentences were related to lower self-concept clarity.

- Lower self-concept clarity was related to more aggressive sentences following aggression stories where the ending was anti-aggression.

- Writing more aggressive follow-on sentences to stories describing physical, stranger-targeted, and male on male aggression was associated with lower level of self-concept clarity.

- More aggressive sentences following physical and male on male aggression stories was also associated with a higher level of hostile attributions.

The prediction that instrumental beliefs would be associated with pro-aggressive social scripts (hypothesis 3) is not supported by these findings. No associations were found between sentence ratings and diagnosis, personality disorder, or violent history. However, there was an association between type of story and substance misuse. Those with substance misuse problems wrote significantly more aggressive sentences following neutral stories (mean rating = 0.097) than those without addictions (mean rating = 0.04) ($t(46) = -1.918$, $p=0.05$).

DISCUSSION

The overall aim of this research was to investigate the relationships between certain personality factors (narcissism and self-concept clarity), aggressive beliefs, information-processing mechanisms (hostile attributions, aggressive social scripts and outcome expectancies), and aggressive behaviour (type of index offence, history of violent behaviour) within a mentally ill forensic population.

1. Summary of Findings

The main findings can be summarised as follows. Contrary to a number of the predictions made, the only factor associated with aggressive behaviour (as measured by violent history) was substance misuse. However, in support of hypothesis 5, hostile attributions were predictive of higher level of anger on the attribution task, even if not the objective measure of aggression. Furthermore, contrary to predictions, it was instrumental rather than expressive beliefs about aggression that correlated with hostile attributions (hypothesis 2). In relation to the prediction that instrumental belief would be associated with aggressive social scripts and outcome expectancies (hypothesis 3), it was actually found that instrumental beliefs were associated with a *longer* reading time for *both* pro and anti aggressive story endings, suggesting that neither type of ending corresponded with the individual's expected outcome. Additionally, there was a lack of association between instrumental beliefs and aggressive follow-on sentences (as a measure of aggressive social scripts) which further suggests that hypothesis 3 was not supported by this study.

Arguably, the most robust finding from this study came from the investigation of the relationship of personality factors to beliefs, and social-information processing mechanisms, with self-concept clarity consistently related to a number of different factors. This variable was the only significant independent predictor of both expressive and instrumental beliefs about aggression, and also independently predicted hostile attributions. These findings suggest that the less self-concept clarity reported, the stronger the beliefs about aggression, and the more hostile attributions made in ambiguous provocation situations. Furthermore, less self-concept clarity was significantly associated with more aggressive sentences following aggressive stories, particularly those with an anti-aggressive story ending. This suggests that those low in self-concept clarity accessed aggressive social scripts particularly easily, even when the aggressive act was not condoned in the story.

The other personality construct investigated, narcissism, also made a significant independent contribution to the prediction of hostile attributions, alongside self-concept clarity. However, whilst this trait was significantly associated with stronger instrumental beliefs, it did not have any independent predictive power when self-concept clarity was included in the analysis. Similarly, whilst stronger instrumental beliefs were significantly associated with more hostile attributions, they did not make an independent contribution to the prediction of hostile attributions when narcissism and self-concept clarity taken into account. Hostile attribution was found to be associated with writing more aggressive sentences after aggressive stories depicting physical and 'male on male' aggressive acts. More detailed interpretation of these findings will now be considered in the following sections.

2. Self-Concept Clarity or Narcissism?

The importance of self-concept clarity in the present study lends some support to previous research that has considered it in relation to aggression as measured by verbal attack (Stucke & Sporer, 2002) or aggressive driving (Stucke, 2001). However, in both these studies, it was the combination of narcissism with low self-concept clarity that was the most predictive personality configuration, whereas in the present study, with the exception of predicting hostile attribution, it is self-concept clarity and not narcissism that is key.

One explanation of this maybe that, in fact, self-concept clarity actually taps into an aspect of narcissism. Certainly, Stucke and Sporer (2002) included this measure in their study in order to better measure the fragile self-view aspect of narcissism. However, in their studies, and obviously in the work of Bushman and Baumeister (1998), and Rhodewalt and Morf (1998), it is narcissism that is focussed on as the key predictive trait, and self-concept clarity is a separate factor that seems to 'add' to narcissistic volatility. However, in the present study, contrary to Stucke and Sporer (2002), self-concept clarity was actually highly correlated with narcissism suggesting that there may indeed be some construct overlap. In this study it seems that whilst it is self-concept clarity that is most predictive, those with low self-concept clarity are also significantly more likely to be highly narcissistic.

Despite this argument, there is a clear *independent* effect of self-concept clarity in this study. This strongly suggests that it is the *fragility* of self-view rather more than the *content* of the self-view (i.e. whether narcissistic or not) that is key in predicting

aggressive beliefs and cognitive processes. This influence of 'stability' is supported by Kernis, Granneman, and Barclay's (1989) research that found unstable fluctuating self-esteem predicted anger and hostility more so than whether the content of the self-esteem was high or low. Other research (Campbell et al., 2003; Bigler, Neimeyer, & Brown, 2001) has also shown the importance of fragility of self-concept, suggesting that it seems to be 'who am I?' (clarity) rather than 'how do I feel about who I am?' (esteem) that is related to psychological adjustment .

Finally, it could be suggested that this study demonstrates the weakness of narcissism studies in that the strong influence of this trait seems to be quite specific to situations in which a clear 'ego-threat' has been made. Narcissism (along with self-concept clarity) did predict hostile attribution which could be argued to provide some support for Baumeister's (1996) assumption that people with this trait make aggressive interpretations of another's intentions. However, narcissism did not predict either aggressive beliefs or other aspects of biased cognitive processing. This could suggest that narcissism might only play a significant role in predicting reactive aggression in situations where specific threat to ability is made, and even then within a population where 'ability' is important to self-concept.

3. Self-Concept Clarity, Aggressive Cognitive Structures and Processes

Whilst the studies already mentioned have indicated the importance of lack of clarity in predicting aggressive feelings and emotional adjustment, the present study is novel in that it shows that self-concept clarity is also predictive of aggressive knowledge structures, and aggressively biased cognitive processing. Thus, this study may be

suggesting the *routes* by which people with a lack of clarity about the self end up feeling or acting more aggressively.

Firstly, self-concept clarity predicts both aggressive beliefs and the accessibility of aggressive social scripts (as measured by aggressive sentence endings to stories). Whilst studies such as Huesmann (1988) and Zelli et al. (1999) have suggested how these knowledge structures can predict aggressive information-processing and behaviour, the present study further suggests that those with lack of self-concept clarity are more likely to hold these aggressive beliefs and social scripts. Furthermore, those with low self-concept clarity accessed aggressive scripts even when the situational cues suggest that aggression is not appropriate – that is, they would write aggressive story endings even when the aggressive behaviour in the story has been socially rejected. This lends support to Dodge and Tomlin's (1987) finding that aggressive children rely more on self-schemas than current situational cues to reach judgements. Perhaps therefore low or poor self-concept clarity makes an individual more vulnerable to creating and chronically using aggressive knowledge structures to interpret and decide on action in a given situation. The validity of this suggestion and whether it then leads onto aggressive behaviour is clearly a matter for further research.

Self-concept clarity also predicts hostile attributions in ambiguous situations which suggests that not only does this characteristic influence more latent knowledge structures, such as beliefs, but also influences how an individual processes information in a given situation. This finding extends studies that found a link between fragility of self view and hostility (Kernis et al., 1989), to suggest that the

route by which this might occur is in interpreting ambiguous situations as hostile encounters. It may be that if the sense of self is stable, then the individual is more impervious to external challenges and therefore less likely to be sensitive to potential threat. However, if an individual's self-view fluctuates, it is more likely that he will rely on another's behaviour towards him to tell him who he is. As such, the individual becomes more sensitive to threat and perhaps develops a hostile manner of interpreting others' actions as a defensive strategy to protect this fragile self-image (Beck, 1999).

4. Self-Concept as Feature of Mental Disorder?

Previous studies have suggested the role of stable individual differences, such as threat perception (Arseneault et al., 2000) in propensity towards violence when mentally ill. However, these studies can be criticised in that what they are measuring may actually just reflect a thinking pattern that is part of the illness itself, rather than a premorbid characteristic. Similarly, in the present study, the measure of self concept clarity might actually be tapping into a feature of schizophrenic illness. The majority of the sample had schizophrenia and a key feature of this disorder is that sufferers have a lack of "cohesion of their senses of self" (Bigler et al., 2001, p409). Perhaps, therefore, self-concept clarity actually measures the degree of self-fragmentation that is a feature of schizophrenia, rather than a premorbid personality feature. However, Bigler et al found that self- concept clarity was related to better psychological adjustment in both student and schizophrenic samples and that both the direction and the magnitude of the relationships were very similar in both samples. Furthermore, Campbell et al., (1996) have demonstrated this construct to be

a relatively stable trait. These studies, therefore, suggest that an inconsistent and vague self-view is not just a feature of mental disorder but a characteristic of the individual. The present study supports this and, in fact, takes the research further by suggesting that low self-concept clarity is also predictive of greater aggressive beliefs and aggressive bias in various information-processing mechanisms.

5. Predicting Aggressive Behaviour

Only substance misuse was predictive of aggressive behaviour which certainly supports the epidemiological studies that have found a notable increase in risk of violence amongst the mentally ill when substance abuse is also present (e.g., Arseneault et al., 2000). However, the fact that no other factor was found to be predictive of aggressive behaviour in this study is contrary to expectations. Most notably, studies on cognitive processing have consistently demonstrated a link between aggressive bias at different stages of processing, and *actual* aggressive behaviour (e.g. Zelli et al., 1999; Smith & Waterman, 2004a). Whilst no predictions of aggressive behaviour could be made in the present study, hostile attributions was the only attribution style that predicted an 'anger' response on the attributions task. Whilst this does not necessary translate to *acting* aggressively, this bias produces the most negative arousal, lending partial support to the previous studies mentioned.

Furthermore, the inability of the personality factors to predict aggressive behaviour is perhaps not as surprising a finding when previous research is reconsidered. The external validity of the studies on narcissism and self-concept clarity is debatable in that the indicators of aggression in the lab (e.g. blasting noise) might not translate to

actual aggressive behaviour. Certainly, the findings from the present study might suggest that the influence of narcissism and self concept clarity on objective 'real world' measures of aggressive behaviour is weaker than expected.

6. Beliefs and Outcome Expectancies

Aggressive beliefs (as measured by EXPAGG) and outcome expectancies (as measured by stories reading time) were not associated with other factors as predicted in the hypotheses. In relation to aggressive beliefs, one explanation might be the lack of distinction between the two types of aggressive beliefs in the present study. Campbell, Muncer, McManus, and Woodhouse (1999) found little correlation between expressive and instrumental beliefs in their samples and concluded that they were independent constructs. However, the present study found that they were in fact highly correlated – those with strong instrumental beliefs also had strong expressive beliefs. It is therefore not really possible to conclude that this study was tapping into either type of belief pattern exclusively and might explain the lack of association and contradictory associations with cognitive processing factors.

In terms of measuring outcome expectancies using reading times, participants had shorter processing times for the anti-aggression story endings compared to pro-aggression endings. This would suggest that stories describing the rejection of aggression matched the sample's outcome expectancy more than stories which condoned aggression. This is a similar finding to that of Bond, Bauer et al. (2004) with a sample from a 'normal' adult population. However, the fact that the present population have committed at least one known aggressive act, a reverse pattern might

have been expected – that is, faster reading times for pro-aggression endings reflecting a pro-aggression outcome expectancy. Certainly, Wingrove and Bond (2005) found that those high on trait aggression processed sentences describing angry reactions to ambiguous stories faster than non-angry reactions. However, in that study, the focus was on whether there was a match between the character and the reader's *emotional* response. The task in the present study was more about tapping into the reader's outcome expectancy following the use of aggression in a story. It would seem, therefore, that this sample do not expect aggression to have a positive outcome. One possible explanation for this is that these participants have indeed begun to internalise social sanctions against aggression – by virtue of the fact that they are incarcerated and in a context where acts of aggression are not going to be positively reinforced. As such, they 'expect' aggressive behaviour to be rejected, even on an implicit level.

Beyond this finding, the use of reading times as an indicator of outcome expectancy did not yield many results. Similarly to the issue with the beliefs measure, on the stories task there was a high correlation between reading times for pro and anti aggressive story endings which suggests that readers did not differentiate, on an implicit processing level, between aggression that was endorsed or condemned.

7. Limitations

7.1 Measurements

The issues outlined above regarding measurement of aggressive beliefs and outcome expectancies have highlighted some of the methodological weaknesses in this study. Firstly, it would seem that future studies should perhaps employ different measures of beliefs in order to better differentiate between instrumental and expressive views. Secondly, whilst the use of the stories task to measure implicit cognitive processing biases is novel, particularly in this population, it did not seem to tap into and differentiate between different outcome expectancies particularly well. It may be that a measure of such subtle differences within an individual was difficult to apply in a sample that, by virtue of their conditions, found it very difficult too concentrate on the task, becoming easily distracted at times.

7.2 Diagnostic Factors

The conclusions to be drawn from this study were further limited by being unable to adequately examine the influence of diagnostic factors alongside personality and cognitive variables. In terms of Axis I disorders, the participants were diagnostically a very homogenous sample, with the majority of the sample suffering from schizophrenia. Furthermore, only a quarter of the participants had an additional personality disorder diagnosis, and within this there were too few of each class of PD to be able to make any meaningful comparisons. Future research would, therefore, benefit from employing a larger and more diagnostically heterogeneous sample in order to compare personality, cognitive and aggression variables across the different disorders. It would also be useful to employ a comparison group of non mentally-

disordered but violent participants (i.e. from prisoner population) to more reliably study whether the relationships found between self-concept clarity, beliefs, and aggressive processing mechanisms are significant irrespective of mental illness.

7.3 Measurement of Aggressive Behaviour

The lack of association between constructs measured and actual aggressive behaviour points towards what is arguably the main weakness of this study – the difficulty of operationalising aggression. It was ethically impossible to manipulate aggression in the manner employed in narcissism studies within this clinical population. Both for this reason, and to increase the external validity of any findings, objective measures of aggressive behaviour were chosen - index offence and history of violence. However as the majority of participants were convicted of a violent offence, this study was only actually able to use 'history' to differentiate between levels of aggressive behaviour. However, the use of recorded incidents in file notes may not have been a sensitive enough measure of aggression in a sample from such a skewed population. The use of additional measures of aggression, such as self-report questionnaires, may pick up on difference more accurately in this kind of population. However, the ideal design to enable the researcher to look at predictors of aggressive or violent behaviour would be to employ a non-violent offender comparison group.

A final key consideration is that it is possible that the null findings in the present study may represent a problem with statistical power as the sample fell short of the ideal size. Certainly, Donnellan et al. (2005) suggest that the effect size is generally small in studies of self-esteem and aggression, which may also apply to study of

other personality characteristics in relation to aggression. It would, therefore, be useful to replicate this study in the future using a larger number of participants.

8. Conclusions and Clinical Implications

This study sought to explore whether factors identified as important predictors of aggression in mainstream research could also be helpful in understanding aggression in a mentally-disordered population. As such, this research also brought together two strands of mainstream research (cognitive and personality) and made use of some of the more sophisticated methodologies associated with cognitive processing research. The key finding from the present study was the importance of self-concept clarity in predicting both aggressive beliefs, and aggressively biased information-processing. This is a novel discovery and therefore a key task for future research would be to see if this finding can be replicated. It will also be important for future research to assess whether low self-concept clarity and biased beliefs and processing do actually translate to aggressive behaviour, although previous studies do suggest that beliefs and processing distortions are good indicators of aggression.

Most attempts to understand risk of violence amongst the mentally-disordered population have focussed on factors intrinsic to the condition – particularly delusion content. At some level, delusions include distorted ideas about the self and these ideas are often focussed on as predictors of risk and, crucially, as the target of intervention. Arguably, a goal in cognitive behavioural therapy for psychosis is to try and shift beliefs and perceptions in order to alleviate distress. However, the present study's novel finding of the predictive power of self-concept clarity actually suggests

that perhaps what is as important as *content* of self-schema is the *stability* of it. This suggests that interventions targeted at increasing the clarity of the individual's self-view, whatever that might be, might help reduce the likelihood of aggressive interpretations of situations.

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PART THREE

CRITICAL APPRAISAL

This paper focuses on a number of issues that were raised by the empirical study in part two of the thesis. These are the difficulties regarding operationalising and measuring aggression; the problems encountered with some measures employed; and, finally, the scientific and clinical implications of the research.

1 – Operationalising Aggression

Arguably, a key issue that requires some further exploration was the study's lack of findings in relation to aggressive behaviour. Two factors seem to be key in explaining this – firstly, the measures of aggression employed and, secondly, the characteristics of the sample. In relation to the first issue, deciding *how* to measure aggression was a challenging process. Research that focuses on this phenomenon appears to operationalise it in different ways dependent on the study or angle of focus in question. Investigations of narcissism, for example, have predominantly utilised the task-failure paradigm in lab settings to manipulate 'aggression' (e.g., Stucke & Sporer, 2002). This method is, therefore, operationalising aggression as a response to clear 'ego' threat on a competitive task. Aggression is then argued to be shown through the blasting of noise, or verbal attack in response to failure. Cognitive studies, however, have operationalised aggression in terms of response to ambiguous social interaction situations, and have measured it through accounts of actual or self-reported aggressive behaviour.

This highlights the problem that there are arguably different types of aggression that are qualitatively different to, and have different correlates from, one another. Whilst narcissism studies may be accessing mild aggression triggered by 'ability evaluation'

and specific to the situation, studies on cognitive processing, particularly hostile attributions, seem to be accessing more explicitly anti-social, behavioural aggression (e.g. externalising behaviours) which relates more to a view of the world at large. Each may be predicted by very different factors. This highlights the fundamental problem in studying aggression – that there is not any substantial agreement on how to define it beyond "simple harm-doing behaviour" (Geen, 2001, p2). Thus, without a clear definition, a unified way of operationalising and measuring aggression becomes problematic.

This issue presented a challenge in the present study in terms of considering what 'type' of aggression was to be measured and how best that could be done. It was clear that manipulating an aggressive response as in narcissism studies was not ethically viable within this clinical population. Compared to a student population, the sample in this study were much more emotionally vulnerable and labile, and, as indicated by the fact that they are in secure units, prone to aggressive outbursts. Furthermore, as discussed in paper 2, aggression in response to a task-failure paradigm is very specific and probably only relevant to a population where achievement (particularly on intellectual tasks) is important. This makes this paradigm useful in a student sample, but quite probably irrelevant to the population I was studying. Thus, as I was trying to investigate predictors of aggressive *behaviour* amongst a clinical population, it seemed appropriate to use objective measures of aggression (index offence and history of violent behaviour).

However, in light of the null findings, these measures were, arguably, not sensitive enough to pick up differences within the sample. As discussed in paper 2, the

participants were fairly homogenous in terms of aggression with the majority of them convicted for a violent offence. This meant that the only possible measure that may have discriminated between participants was *history* of aggressive behaviour. The use of recorded incidents in the file notes is, arguably, a valid objective measure of actual past behaviour. However, authors such as Walsh, Buchanan, and Fahy (2002) have argued that reliance on case notes can be problematic as each may differ in thoroughness of recording. Furthermore, the use of recorded incidents and convicted offences as indicators of past behaviour may overlook more minor incidents of violence. This measure may not therefore have been a sensitive enough tool to accurately detect differences in level of past aggressive behaviour in such a homogenous sample.

Ideally, using a non-violent offender comparison group would enable researchers to more reliably differentiate between violent and non-violent samples on the various measures. Lack of access to such a population meant this was not a possibility in the present study. In absence of such a comparison group, therefore, there is a need to employ multiple methods of measurement to ensure detailed and reliable data, particularly in such a skewed sample. This might mean making use of both self- and other-reports of aggressive behaviour as well as recorded incidents of violence. The use of different measurements would also allow the researcher to measure a different dimension of aggression – such as aggressiveness as a trait, rather than just a behaviour. Such self-report measures may have proved more sensitive to difference across the sample. Measures such as the Aggression Questionnaire (Buss & Perry, 1992) have certainly been shown to differentiate between violent and non-violent

offenders (Smith & Waterman, 2004) suggesting that this measure is indeed sensitive to difference and also a correlate of behavioural aggression.

Whilst the argument for using a variety of measurements is a valid one, a balance also has to be struck between the requirements of the research and the needs of the participants. This is an issue that clearly needs a great deal of consideration when designing studies to be conducted amongst participants from a population that both suffer from mental illness and are also deemed a risk in terms of aggressive behaviour. Compared to other populations (e.g. students), those in the present study were more difficult to engage, with some participants experiencing paranoia about any testing. Additionally, a proportion of them appeared to struggle in terms of attention-span and concentration. Finally, these participants were more likely to have a low threshold for becoming agitated by the testing process. These factors meant that there was an ethically-imposed limit to what could be expected of this sample.

The decision to remove the State-Trait Anger Expression Inventory (STAXI: Spielberger, 1988) from the present study is an example of this point. Whilst this measure would potentially have been able to differentiate between participants (in terms of state and trait anger), its inclusion added too much to the testing time, which already pushed the majority of participants' concentration to the limits. As previous studies have suggested that 'anger' is not necessarily as strong a predictor of violent behaviour as aggressive beliefs (Archer & Haigh, 1997), it was felt appropriate to just include the EXPAGG and drop the STAXI.

Unfortunately, the lack of correlation of factors with measures of aggressive behaviour in this study meant that I could not completely test the hypothesised model that cognitive processes, such as hostile attribution, might mediate the effect of personality (e.g. self-concept clarity) on aggression. This does, to an extent, limit the clinical importance of these findings, in that it cannot be concluded that the relationship between self-concept clarity, aggressive beliefs and scripts, and hostile attributions, actually mean anything in 'real' terms (i.e. behaviour). Having said this, previous studies have demonstrated that the link between aggressive belief systems, processing biases and actual aggressive behaviour is robust (e.g. Zelli, Dodge, Lochman, & Laird,, 1999). So whilst self-concept clarity in the present study does not predict actual behaviour, it is predictive of known correlates of externalising behaviours.

2 – Measurement Issues

The problems encountered with some of the other measures employed in this study are also worth elaborating on.

2.1 EXPAGG

One of the tasks of this study was to look at the relationship between aggressive beliefs, biased processing and aggressive behaviour. Research has suggested that there is a qualitative difference between expressive and instrumental aggressive beliefs and that each may have different correlates (Campbell, Muncer, McManus, & Woodhouse, 1999). Using the EXPAGG allowed me to investigate this and see if,

similarly to Smith and Waterman (2004) and Archer and Haigh (1997), the type of beliefs differentially related to self reported aggression and violence.

However, both Archer and Haigh (1997) and Campbell et al. (1999) have found that these two sets of beliefs are independent of each other whilst the present study, conversely, found a high correlation between the sets of scores. This arguably makes the validity of this measure in the current study questionable as it seems that individuals did not differentiate between expressive or instrumental beliefs but, rather, had either stronger or weaker beliefs per se. As virtually all the participants had been violent at some point, they perhaps showed a more complex pattern of beliefs, with both reactive and proactive aggressive schema existing side by side. However, previous studies, such as Archer and Haigh (1997) and Smith and Waterman (2004) also studied violent populations but still found little correlation between types of beliefs.

Another explanation for the finding may be the need for some participants to act in a socially desirable way. Asking individuals who are incarcerated for violent crimes to express their beliefs about the use of aggression in an honest way is perhaps a little contentious. Whilst this has been achieved in studies of prisoners, individuals in secure hospitals perhaps have to show rejection of the use of aggression more visibly than normal prisoners, as achieving release into the community is largely based on assessing their risk of re-offending. As a result, this sample either denied any beliefs about aggression at all or, amongst those that were happy to express their views, a complex pattern of both expressive and instrumental beliefs was found. A final, more obvious explanation for the present study's finding is that mentally disordered

offenders are more likely to hold both sets of beliefs simultaneously than offenders who are not suffering from an Axis I disorder. Whether this is the case and, if so, what that might mean about aggression and mental illness, points towards a need to replicate this aspect of the study. It also points towards the need to conduct such a study with a violent but mentally stable control group.

2.2 Stories Task

Participants in the present study were significantly slower in reading pro-aggressive story endings, suggesting that they expected the use of aggression to have a negative outcome. Considering that several studies (e.g., Deluty, 1983; Quiggle, Garber, Panak, & Dodge, 1992) have found that aggressive children tend to favourably view the use of aggression, this pattern might also have been expected in the present sample of violent offenders. However, Bond, Bauer, and Wingrove (2004), using this instrument, found no associations between trait aggressiveness and pro-aggression outcome expectancy amongst a 'normal' sample. Furthermore, the associations found between reading times and the other measures were quite confusing, particularly the finding that instrumental beliefs were associated with faster reading times for *both* types of endings.

These findings perhaps suggest that the Stories task's measurement of outcome expectancy does not effectively discriminate between people who have different beliefs about aggression. One possibility is that there were too many different 'types' of aggressive scenarios described in the stories, and that any relationship between instrumental beliefs and positive outcome expectancy only relates to specific situations. In support of this argument, a study by Crick and Dodge (1989) in

fact found that aggressive children actually had *negative* expectations about the use of physical aggression, but more positive evaluations about the use of verbal aggression.

A second argument that could be put forward to explain the findings is that it is actually quite hard to evaluate this type of outcome expectancy on an implicit level. Other studies such as Wingrove and Bond (2005) have used a different version of task that measure expectancies in terms of *emotional response* to a situation - that is, whether an angry response in a situation 'fits' with the reader's expectations. In that study, they did find that faster reading times for 'angry' responses correlated with trait anger and aggression, suggesting that the task was indeed tapping into a relatively automatic cognitive bias. However, in the present version of the stories task, what is being measured is more whether the reader thinks the use of aggression was 'right' or 'wrong'. This is arguably quite a conscious process and perhaps influenced by a knowledge of social norms and desire to be socially appropriate. The reading times may therefore reflect how the reader believes the person in the story *should* respond, rather than tapping into how the reader might evaluate using aggression himself. Furthermore, most studies that have found positive outcome expectancies associated with aggression have been conducted amongst children. Arguably, they are less likely than adults to be aware of social norms and expectations regarding behaviour and so perhaps more likely to give unbiased responses.

However, the stories task did seem to be effective in terms of tapping into aggressive social scripts. The finding that, when aggression was condoned in the story, the

follow-on sentences were more aggressive in content demonstrates a clear priming effect. This effect has been shown in a number of other studies from priming via aggressive video games (Anderson & Dill, 2000) to reading aggressive comic books (Kirsh & Olczak, 2002). Bond et al. (2004) argue that a positive response to aggression in these stories may legitimise and reduce inhibitions to aggressive behaviour. Importantly, the inhibitions of those with poor self-concept in relation to aggressive behaviour were reduced irrespective of whether the aggression was condemned or condoned in the story. In terms of clinical implications this suggests that for this group of people, social norms and evaluation are ignored once aggressive schema are activated.

2.3 SIP-AEQ

The correlation found between items measuring hostile attributions and those measuring instrumental attributions on this task strongly suggested that the items were in fact measuring the same bias. Certainly when the statements were looked at more thoroughly they seemed, in terms of face validity, to be measuring very similar processes. Furthermore, on a theoretical level, the author (Coccaro, 2004) did not make clear the rationale for measuring instrumental attributions and, thus, it is very difficult in the present study to understand the implications of the correlation with hostile attributions. It may reflect the fact that this measure was validated on a US sample with intermittent explosive disorder, who may well discriminate between hostile and instrumental attributions better than my sample. However, this clearly needs further investigation and, in terms of the present study, a different attribution task, such as that described in Serin's study (1991), may have produced clearer results.

3. Implications for Clinical and Scientific Work

3.1 Integration of Theories

A clear purpose in this study was to examine in one study both key cognitive and personality correlates of aggression, thereby drawing together these two important strands of aggression research. This has therefore attempted to put into practice the strategy of 'theory-knitting' as stipulated by Kalmar and Sternberg (1988). Whilst both personality and cognitive lines of research have produced some important theories, the lack of integration has limited development of knowledge about the predictors of aggression. Moreover, the lack of application of these concepts to clinical populations has seemed to send out a message that aggression within the mentally ill is a completely different phenomenon than any other aggression. Models of aggression that claim to be more integrative, such as the General Aggression Model (Anderson & Bushman, 2002), have been developed. However, it can be argued that this model in particular is in fact an amalgamation of the different theories, and not a complete, operationalisable model to predict aggression. This may also explain why there has been a limited number of studies that have tested out the model.

Perhaps the key reason for this lack of cohesion links back to the points made earlier in this paper – that aggression is multidimensional. It may be that there are always going to be different predictive models dependent on what kind of aggression is being focussed on. This may then explain why there has been such limited integration of theories, and such specific populations investigated. If cognitive research is focussed on aggressive behaviour in ambiguous social situations, but

personality studies are concentrating on mild aggressive reactions to obvious threat then they are arguably trying to predict different phenomena, making it very difficult to see how they could knit together into one overarching theory. Having said this, it is clear that whatever type of aggression the researcher is considering, both personality and cognitive processing factors will be implicated along with a myriad of other influences, such as emotional state or situational factors. It is important, therefore, that more studies start integrating these factors irrespective of the form of aggression they are interested in.

4.2 Clinical Relevance

Whilst the present study's findings clearly need to be replicated, the importance of self-concept clarity in relation to a variety of aggressive biases highlights an area that could potentially be targeted within therapeutic settings. As already discussed in the empirical paper, it might be targeted in cognitive behavioural approaches by allowing more focus on clarifying and stabilising the self-concept, whatever the content of that self-view might be.

Many interventions that deal with aggression are based on the concept that all aggression is anger-based. However, it seems that there is mixed evidence as to whether anger management programmes are that successful amongst more complex populations, such as violent prisoners, or forensic hospital patients (e.g. Renwick, Black, Ramm, & Novaco, 1997). Whilst anger might be an important risk factor for violence, particularly amongst psychiatric patients (Novaco, 1994), it is not a *sufficient* explanation of aggressive behaviour. The present study suggests other factors– poor self-concept, aggressive schema, distorted processing – may prove

important distal determinants of aggressive behaviour amongst these more chronically aggressive populations. Therapeutic interventions therefore need to adapt to incorporate these as target areas, whilst also considering that there are different forms of aggression with different correlates and, therefore, individualised formulation is key.

On a broader level, the finding that a relatively stable personality trait (self-concept clarity) can predict correlates of aggressive behaviour, such as beliefs and cognitive processing biases, emphasises the important idea that mental illness per se is not a sufficient explanation of increased violence in this population. Hopefully research will continue to find that predictors of aggression in the 'normal' population are equally useful in explaining this phenomenon amongst mentally ill people. This may then help to chip away at the damaging societal view that to be mentally ill is to be dangerous.

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APPENDICES

APPENDIX A

Ealing Local Research Ethics Committee

30 June 2004

Miss Rachel Edwards
Trainee Clinical Psychologist
University College London
Sub department of Clinical Health Psychology

Dear Miss Edwards,

Full title of study: The Relationship between Threatened Egotism and Aggression: Investigating the mediating roles of aggressive cognitive bias and social scripts
REC reference number: 04/Q0410/7
Protocol number: 1

The Research Ethics Committee reviewed the above application at the meeting held on 14 June 2004.

Ethical opinion

The Committee would like reassurances that the copyright on the questionnaires is being respected. On the Patient Information Sheet the reason given as to why the patient has been chosen is that they can read English, perhaps a little more information can be given. The Consent form has a different title to the study, one or other should be chosen and used throughout. Perhaps the simpler title would do for both? On the IAT questionnaire page five, the last question uses the term 'kids' instead of 'blokes'. These points need to be addressed and the new sheets copied to the Committee for our files.

The members of the Committee present gave a favourable ethical opinion to the above research on the basis described in the application form, protocol and supporting documentation.

The favourable opinion applies to the following research site:

Site: West London Mental Health NHS Trust
Principal Investigator: Miss Rachel Edwards

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Approved documents

The documents reviewed and approved at the meeting were:

Document Type: Application
Version: 1
Dated: 25/05/2004
Date Received: 25/05/2004

Document Type: Investigator CV
Version:
Dated: 25/05/2004
Date Received: 25/05/2004

Document Type: Protocol
Version: 1
Dated: 25/05/2004
Date Received: 25/05/2004

Document Type: Covering Letter
Version:
Dated: 25/05/2004
Date Received: 25/05/2004

Document Type: Peer Review
Version:
Dated: 25/05/2004
Date Received: 25/05/2004

Document Type: Copy of Questionnaire
Version: 1
Dated: 25/05/2004
Date Received: 25/05/2004

Document Type: Participant Information Sheet
Version: 1
Dated: 25/05/2004
Date Received: 25/05/2004

Document Type: Participant Consent Form
Version: 1
Dated: 25/05/2004
Date Received: 25/05/2004

Management approval

The study may not commence until final management approval has been confirmed by the organisation hosting the research.

All researchers and research collaborators who will be participating in the research must obtain management approval from the relevant host organisation before commencing any research procedures. Where a substantive contract is not held with the host organisation, it may be necessary for an honorary contract to be issued before approval for the research can be given.

Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

Notification of other bodies

We shall notify the research sponsor, West London Mental Health NHS Trust and the Medicines and Health-Care Products Regulatory Agency that the study has a favourable ethical opinion.

Statement of compliance *(from 1 May 2004)*

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

REC reference number: 04/Q0410/7 **Please quote this number on all correspondence**

Yours sincerely,

Chairman

Enclosures *List of names and professions of members who were present at the meeting and those who submitted written comments*

Standard approval conditions [SL-AC1 or SL-AC2]

APPENDIX B

(29th November 2004 Version 2)

Patient Information Sheet

Study on Personality, Thinking Style and Aggressive Behaviour

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

What is the research about?

The aim of the research is to understand the relationship between certain personality characteristics and aggression and how this might be affected by the way a person thinks. The study will be running until May 2005.

Why have I been chosen?

You will have been approached for this study if your consultant feels you are well enough to take part. You will also have been chosen if you are able to read English adequately. This is because you will be reading and responding to stories and questionnaires in English. Please notify us if you feel that, for either reason, it is not appropriate for you to take part. Between 60 and 80 other participants will be asked to take part in this study.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect the standard of care you receive.

What is involved if I take part?

The study will require you to meet with a researcher on one occasion at the unit. You will be asked to complete five short questionnaires and then a computer-based task. This should all take about 1 – 11/2 hours in total. There are no right or wrong answers to any of the questions or in the computer task.

However, should you feel yourself becoming angry at any point during the testing, we would ask you to please notify the researcher. She will then terminate the interview and notify a member of the nursing staff.

There will be no known clinical benefit to you in taking part in this research. You will be paid £5 to compensate you for the time required to take part in this study.

Will my participation be kept confidential?

All information which is collected about you during the course of the research will be kept strictly confidential. Any information about you which leaves the hospital will have your personal details removed so that you cannot be recognised from it.

What will happen to the results of this study?

Results should be available by June 2005 and a copy will be made available to you from your consultant. You will not be personally identifiable in any of the results.

Who is organising this research?

This study is part of a doctoral thesis being carried out by the researcher, and is approved by University College London. It has also been reviewed by West London Ethics Committee.

Who can I contact if I have a question?

When you have had time to read about the study, Rachel Edwards will meet with you again and you will be able to ask any questions you have about the research.

You will be given a copy of this information sheet and signed consent form to keep.

APPENDIX C

NPI

..... Date..... S. No:.....

Please read the following statements and circle the appropriate number as it applies to you generally

	Not at all				Very much
I have a natural talent for influencing people.	1	2	3	4	5
Modesty doesn't become to me.	1	2	3	4	5
I would do almost anything on a dare.	1	2	3	4	5
I know that I am good because everybody keeps telling me so.	1	2	3	4	5
If I ruled the world it would be a much better place.	1	2	3	4	5
I can usually talk my way out of anything.	1	2	3	4	5
I like to be the centre of attention.	1	2	3	4	5
I will be a success.	1	2	3	4	5
I think I am a special person.	1	2	3	4	5
I see myself as a good leader.	1	2	3	4	5
I am assertive.	1	2	3	4	5
I like to have authority over other people.	1	2	3	4	5
I find it easy to manipulate people.	1	2	3	4	5
I insist upon getting the respect that is due to me.	1	2	3	4	5
I like to display my body.	1	2	3	4	5
I can read people like a book.	1	2	3	4	5
I like to take responsibility for making decisions.	1	2	3	4	5
I want to amount to something in the eyes of the world.	1	2	3	4	5

I like to look at my body.	1	2	3	4	5
I am apt to show off if I get the chance.	1	2	3	4	5
I always know what I am doing.	1	2	3	4	5
I rarely depend on anyone else to get things done.	1	2	3	4	5
Everybody likes to hear my stories.	1	2	3	4	5
I expect a great deal from other people.	1	2	3	4	5
I will never be satisfied until I get all that I deserve.	1	2	3	4	5
I like to be complimented.	1	2	3	4	5
I have a strong will to power.	1	2	3	4	5
I like to start new fads and fashions.	1	2	3	4	5
I like to look at myself in the mirror.	1	2	3	4	5
I really like to be the centre of attention.	1	2	3	4	5
I can live my life in any way I want to.	1	2	3	4	5
People always seem to recognise my authority.	1	2	3	4	5
I would prefer to be a leader.	1	2	3	4	5
I am going to be a great person.	1	2	3	4	5
I can make anybody believe anything I want them to.	1	2	3	4	5
I am a born leader.	1	2	3	4	5
I wish somebody would someday write my biography.	1	2	3	4	5
I get upset when people don't notice how I look when I go out in public.	1	2	3	4	5
I am more capable than other people.	1	2	3	4	5
I am an extraordinary person.	1	2	3	4	5

SCCS

Name..... Date..... S. No:.....

Please read the following statements and circle the appropriate number as it applies to you generally

	Strongly agree				Strongly disagree
My beliefs about myself often conflict with one another.	1	2	3	4	5
On one day I might have one opinion of myself and on another day I might have a different opinion.	1	2	3	4	5
I spend a lot of time wondering about what kind of person I really am.	1	2	3	4	5
Sometimes I feel that I am not really the person that I appear to be.	1	2	3	4	5
When I think about the kind of person I have been in the past, I'm not not sure what I was really like.	1	2	3	4	5
I seldom experience conflict between the different aspects of my personality.	1	2	3	4	5
Sometimes I think I know other people better than I know myself.	1	2	3	4	5
My beliefs about myself seem to change very frequently.	1	2	3	4	5
If I were asked to describe my personality, my description might end up being different from one day to another day.	1	2	3	4	5
Even if I wanted to, I don't think I would tell someone what I'm really like.	1	2	3	4	5
In general, I have a clear sense of who I am and what I am.	1	2	3	4	5
It is often hard for me to make up my mind about things because I don't really know what I want.	1	2	3	4	5

EXPAGG

Study Participant number / name Date

Please circle one number for each of the statements below.
1 means strong agreement and 5 means strong disagreement.

	strongly agree	agree	neither agree nor disagree	disagree	strongly disagree
1. I believe that physical aggression is necessary to get through to some people.	1	2	3	4	5
2. During a physical fight I feel out of control.	1	2	3	4	5
3. If I hit someone and hurt them, I feel as if they were asking for it.	1	2	3	4	5
4. I am most likely to get physically aggressive when I've been under a lot of stress and some little thing pushes me over the edge.	1	2	3	4	5
5. After a physical fight I feel drained and guilty.	1	2	3	4	5
6. I am more likely to hit out physically when another person shows me up in public.	1	2	3	4	5
7. In a heated argument I am most afraid of saying something terrible that I can never take back.	1	2	3	4	5
8. In an argument I would feel more annoyed with myself if I cried than if I hit the other person.	1	2	3	4	5
9. I believe that my aggression comes from losing my self-control.	1	2	3	4	5
10. The best thing about physical aggression is that it makes the other person get in line.	1	2	3	4	5
11. After I lash out physically at another person, I would like them to acknowledge how upset they made me and how unhappy I was.	1	2	3	4	5
12. If someone challenged me to a fight in public, I'd feel cowardly if I backed away.	1	2	3	4	5
13. After I lash out physically at another person, I would like them to make sure they never annoy me again.	1	2	3	4	5
14. When I get to the point of physical aggression, the thing I am most aware of is how upset and shaky I feel.	1	2	3	4	5
15. I am more likely to hit out physically when I am alone with the person who is annoying me.	1	2	3	4	5
16. I am most likely to get physically aggressive when I feel another person is trying to make me look like a jerk.	1	2	3	4	5

NAME _____ **DATE** _____ **CNPRU#** _____

AEQ-SIP 1.1

Please read these short stories about relationships with other people and answer all questions asked about the story as honestly as possible. Please circle your answers where indicated.

STORY 1

You tell a friend something personal and ask your friend not to discuss it with anyone else. However, a couple of weeks later, you find out that a lot of people know about it. You ask your friend why s/he told other people and your friend says, "Well, I don't know, it just came up and I didn't think it was a big deal."

			Not At All Likely	Unlikely	Likely	Very Likely
A.	Why do you think your friend shared your secret when you told them not to share it with anyone?					
		Rate the likelihood of each statement on a scale of 0 to 3:				
	A1.	My friend wanted to expose my secret.	0	1	2	3
	A2.	My friend wanted to impress other people with their secret knowledge about me.	0	1	2	3
	A3.	My friend forgot that this was an important secret for me.	0	1	2	3
	A4	My friend wanted me to feel stupid for asking to keep my secret.	0	1	2	3
B.	How likely is it that you would be angry if this happened to you?		0	1	2	3
C.	How likely is it that you would be upset with yourself if this happened to you?		0	1	2	3

STORY 2

Imagine that you are in a karate class competition and you have to demonstrate your abilities to your instructor. You are matched up to "fight" with someone in the class who you do not know well. While you are being evaluated, your karate classmate hits you in a way other than the way you were taught and you are hurt.

			Not At All Likely	Unlikely	Likely	Very Likely
A.	Why do you think your karate classmate hit you in a way other than the way you were taught?					
		Rate the likelihood of each statement on a scale of 0 to 3:				
	A1.	My karate classmate wanted to physically hurt me.	0	1	2	3
	A2.	My karate classmate wanted to win the match.	0	1	2	3
	A3.	My karate classmate did it by accident.	0	1	2	3
	A4	My karate classmate wanted to make me look "bad".	0	1	2	3
B.	How likely is it that you would be angry if this happened to you?		0	1	2	3
C.	How likely is it that you would be embarrassed if this happened to you?		0	1	2	3

Please turn over to the next page

NAME _____ DATE _____ CNPRU# _____

STORY 3

Early one morning (at "rush hour") you go to a busy local coffee shop to get a cup of coffee. While you are waiting, someone you see at the coffee shop regularly, but do not know personally, cuts in the line in front of you.

			Not At All Likely	Unlikely	Likely	Very Likely
A.	Why do you think this person cut in line in front of you?	*Rate the likelihood of each statement on a scale of 0 to 3:*				
	A1.	This person wanted to make me wait longer to get my coffee.	0	1	2	3
	A2.	This person was in a hurry to get in to work.	0	1	2	3
	A3.	This person didn't realize that he (or she) cut in line in front of me.	0	1	2	3
	A4	This person wanted me to feel unimportant.	0	1	2	3
B.	How likely is it that you would be angry if this happened to you?		0	1	2	3
C.	How likely is it that you would be upset with yourself if this happened to you?		0	1	2	3

STORY 4

Imagine that you and a group of your co-workers went on a business trip. While at the hotel, waiting to meet a customer, you stop to buy a cup of coffee. Suddenly, one of your co-workers bumps your arm and spills your coffee over your shirt. The coffee is hot and your shirt is wet.

			Not At All Likely	Unlikely	Likely	Very Likely
A.	Why do you think your co-worker bumped your arm making you spill your coffee?	*Rate the likelihood of each statement on a scale of 0 to 3:*				
	A1.	My co-worker wanted to burn me with the hot coffee.	0	1	2	3
	A2.	My co-worker was focused on the meeting.	0	1	2	3
	A3.	My co-worker did it by accident.	0	1	2	3
	A4	My co-worker wanted to make me look "bad" to the customer.	0	1	2	3
B.	How likely is it that you would be angry if this happened to you?		0	1	2	3
C.	How likely is it that you would be embarrassed if this happened to you?		0	1	2	3

Please turn over to the next page

NAME _____ DATE _____ CNPRU# _____

STORY 5

You make plans with one of your friends to go on a short trip for the weekend. You're very excited about these plans and have been looking forward to the trip. However, at the last minute, your friend says that he (or she) no longer wants to go on the trip and has made plans with another friend for the weekend.

			Not At All Likely	Unlikely	Likely	Very Likely
A.	Why do you think your friend said he/she no longer wanted to go on the trip	*Rate the likelihood of each statement on a scale of 0 to 3:*				
	A1.	My friend doesn't want to be with me.	0	1	2	3
	A2.	My friend wanted to do something else.	0	1	2	3
	A3.	My friend forgot about the plans we made.	0	1	2	3
	A4	My friend wanted me to feel unimportant.	0	1	2	3
B.	How likely is it that you would be angry if this happened to you?		0	1	2	3
C.	How likely is it that you would be upset with yourself if this happened to you?		0	1	2	3

STORY 6

One day at work you decide to go to the cafeteria for lunch. After you purchase your lunch, you notice that the seating area is very crowded and no empty tables are available. You notice one of your co-workers sitting alone at a small table and ask if you can join him (or her) for lunch. Your co-worker says "no".

			Not At All Likely	Unlikely	Likely	Very Likely
A.	Why do you think your co-worker said "no"?	*Rate the likelihood of each statement on a scale of 0 to 3:*				
	A1.	My co-worker wanted to exclude me.	0	1	2	3
	A2.	My co-worker wanted to be alone at that time.	0	1	2	3
	A3.	My co-worker was "lost in thought" and didn't realize I had asked to join him (or her).	0	1	2	3
	A4	My co-worker wanted me to feel bad.	0	1	2	3
B.	How likely is it that you would be angry if this happened to you?		0	1	2	3
C.	How likely is it that you would be embarrassed if this happened to you?		0	1	2	3

Please turn over to the next page

NAME _____ **DATE** _____ **CNPRU#** _____

STORY 7

Imagine that you are new at work and you would like to make friends at your new job. At lunch time, you see some co-workers that you met earlier and decide that you would like to sit with them. You go over to their table and ask if you can join them. One of them says, "No, we were just finished." And they all get up and leave you there alone.

			Not At All Likely	Unlikely	Likely	Very Likely
A.	Why do you think your co-workers left you there alone?					
		Rate the likelihood of each statement on a scale of 0 to 3:				
	A1.	My co-workers wanted to exclude me from their group.	0	1	2	3
	A2.	My co-workers wanted to do something else before their break was over.	0	1	2	3
	A3.	My co-workers had just been told to get back to work.	0	1	2	3
	A4	My co-workers wanted to embarrass me.	0	1	2	3
B.	How likely is it that you would be angry if this happened to you?		0	1	2	3
C.	How likely is it that you would be embarrassed if this happened to you?		0	1	2	3

STORY 8

Imagine that you go to the first meeting of a club you want to join. You would like to make friends with the other people in the club. You walk up to some of the other club members and sav. "Hi!" but they don't say anything back.

			Not At All Likely	Unlikely	Likely	Very Likely
A.	Why do you think the club members didn't say anything back to you?					
		Rate the likelihood of each statement on a scale of 0 to 3:				
	A1.	The club members wanted to ignore me.	0	1	2	3
	A2.	The club members were more interested in talking among themselves.	0	1	2	3
	A3.	The club members didn't hear me say "Hi".	0	1	2	3
	A4	The club members wanted me to feel unimportant.	0	1	2	3
B.	How likely is it that you would be angry if this happened to you?		0	1	2	3
C.	How likely is it that you would be embarrassed if this happened to you?		0	1	2	3

Please turn over to the next page

NAME _____ DATE _____ CNPRU# _____

STORY 9

You are driving in to work one day and just after you pull into a parking space, another car pulls up into the space to your right. As the person in the other car, a co-worker, gets out of his/her car, their car door hits your passenger side door and leaves a scratch on your car. The person walks away as you get out of your car.

			Not At All Likely	Unlikely	Likely	Very Likely
A.	Why do you think this person acted this way?	*Rate the likelihood of each statement on a scale of 0 to 3:*				
	A1.	This person wanted to damage my car.	0	1	2	3
	A2.	This person was in a hurry to get in to work.	0	1	2	3
	A3.	This person scratched my car by accident and didn't notice.	0	1	2	3
	A4	This person wanted me to feel unimportant.	0	1	2	3
B.	How likely is it that you would be angry if this happened to you?		0	1	2	3
C.	How likely is it that you would be upset with yourself if this happened to you?		0	1	2	3

STORY 10

Imagine that you are walking down the hallway at work. You're carrying your files in your arm and talking to a friend. The two of you are enjoying your conversation. Suddenly, a co-worker, someone you do not know well but have talked with before, bumps you from behind. You stumble and all of your files go flying across the floor. Your other co-workers, who are in the hall, start laughing.

			Not At All Likely	Unlikely	Likely	Very Likely
A.	Why do you think your co-worker bumped into you?	*Rate the likelihood of each statement on a scale of 0 to 3:*				
	A1.	My co-worker wanted to me to look clumsy and foolish.	0	1	2	3
	A2.	My co-worker was in a hurry to get to their next appointment.	0	1	2	3
	A3.	My co-worker bumped into me by accident.	0	1	2	3
	A4	My co-worker wanted me to embarrass me.	0	1	2	3
B.	How likely is it that you would be angry if this happened to you?		0	1	2	3
C.	How likely is it that you would be embarrassed if this happened to you?		0	1	2	3

Please turn over to the next page

APPENDIX D

EXAMPLE OF AGGRESSIVE STORY WITH ALTERNATE ENDINGS