THE ROLE OF SELF-CONCEPT AND NARCISSISM IN AGGRESSION

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ABSTRACT

It was hypothesized that the self-esteem instability and emotional reactivity associated with narcissism may be related to the simplicity of cognitive self-representation known as low self-complexity. The relationships among narcissism, self-concept, affect and violent behaviour were investigated in two studies with samples of federally sentenced violent and sexual offenders. In the first study, participants completed personality inventories and a measure of self-complexity, while changes in self-esteem were tracked across two weeks. In the second study, participants completed the same battery of measures as in the first study in addition to several new measures of anger, aggression and previous violent behaviour. Also, official records were consulted to obtain collateral information regarding violent behaviour. Experiences of positive and negative events and the resulting changes in affect and self-esteem were tracked over six weeks. It was expected that self-complexity would mediate reactivity to daily events such that individuals low in self-complexity and high in narcissistic personality traits would report the greatest shifts in self-esteem and emotion. When positive and negative self-complexity were considered separately, some support was found for the hypothesized buffering effect. Generally, higher positive self-complexity was associated with better coping while higher negative self-complexity was associated with less desirable reactions to events. Theoretical and clinical implications of this finding are discussed along with limitations of these studies and suggestions for future research.

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DEDICATION

To my mother and father, Sheila and Dave Fossey, who succeeded in their endeavor to create a home that fostered creative exploration and instilled in their children an understanding of the rewards of persistence and determination.

To my loving husband, Mike Hook, who has been with me on every step of this journey, and who has given much of himself to help see this project through. One could not wish for a better partner.

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LIST OF ABBREVIATIONS

AC-I	Anger Control - Inward
AC-O	Anger Control - Outward
Agg/Sad	Aggressive-Sadistic scale of the MCMI
AI	Acting-in subscale of the Behavioural Stress Response Survey
ANCOVA	Analysis of co-variance
ANOVA	Analysis of variance
AO	Acting-out subscale of the Behavioural Stress Response Survey
APA	American Psychiatric Association
APD	Antisocial Personality Disorder
AX-I	Anger Expression - Inward
AX-O	Anger Expression - Outward
BPAQ	Buss Perry Aggression Questionnaire
BPD	Borderline Personality Disorder
BR	Base rate
BSRS	Behavioural Stress Response Survey
CFSEI-2	Culture Free Self-Esteem Inventory-Second Edition
CPI-So	Socialization subscale of the California Psychological Inventory
DP	Depressive Personality Scale of the MCMI
DSM	Diagnostic and Statistical Manual
DSM-IV	Diagnostic and Statistical Manual, Fourth Edition
Dys	Dysthymia Scale of the MCMI
E/E	Entitlement / Expoitativeness factor of the NPI
IV	Independent Variable
L/A	Leadership / Authority factor of the NPI
MACI	Millon Adolescent Clinical Inventory
Mc5	Narcissism scale of the MCMI
Mc5 x SC	MCMI-Narcissism by Self-complexity interaction term
MCMI	Millon Clinical Multiaxial Inventory
MCMI-III	Millon Clinical Multiaxial Inventory, Third Edition
MCMI-Narc	Narcissism scale of the MCMI
MCMI-Y	Desirability scale of the MCMI
MD	Major Depression Scale of the MCMI
MMPI	Minnesota Multiphasic Personality Inventory
NA	Negative Affect
NPD	Narcissistic Personality Disorder
NPI	Narcissistic Personality Inventory
NPI x SC	NPI by Self-complexity interaction term
O-H	Overcontrolled Hostility scale of the MMPI
OR	Official report
ORBEH	Official report measure of violent behaviour
PA	Positive Affect
PANAS	Positive and Negative Affect Schedule
PDS	Paulhus Deception Scale
PRI	Personal Relations Inventory

REF	Reflected
RPC	Regional Psychiatric Center
S/A	Superiority / Arrogance factor of the NPI
S.C. or SC	Self-complexity
SCD	Self-concept differentiation
SE	Self-esteem
SPSS	Statistical Package for the Social Sciences
SQRT	Square root transformation
SR	Self-report
SRBEH	Self-report of violent behaviour
S/S	Self-absorption / Self-admiration factor of the NPI
STAXI-2	State-Trait Anger Inventory, Second Edition
TR	Transformed
vAng	Variability of anger scores
vNA	Variability of Negative Affect
vPA	Variability of Positive Affect
vSE	Variability of CFSEI-2 score
vSR	Variability of self-reported self-esteem

CHAPTER 1
INTRODUCTION

Half the harm that is done in this world
Is due to people who want to feel important
They don't mean to do harm but the harm does not interest them.
Or they do not see it, or they justify it
Because they are absorbed in the endless struggle
To think well of themselves.
T.S. Elliot

Violence has been called the "preeminent evil of our postmodern era" (Diamond, 2003, p.21). Its prevalence in and glorification by society are difficult to deny when one considers the popularity of violent sports such as boxing and wrestling, and the proliferation of increasingly graphic video games, music videos, and television programming. It seems one cannot exist in society without regularly witnessing violence in some form. In addition to its prevalence in mass entertainment, it seems that violence is increasingly a part of people's real world lives and when violence shifts from Hollywood's silver screen to invade one's life, what was once enjoyed as entertainment is experienced, often frighteningly and tragically, as crime.

Violent crime is a significant social problem in Canada. Statistics Canada has reported that, while the overall crime rate across the country has decreased steadily over the past several years, violent crime appears to be increasing. From 1999 to 2003, the violent crime rate rose from 958.2 to 962.8 per 100,000 population. The most significant increase observed was in the rate of assaults (from 728.0 to 746.5 per 100,000) (Statistics Canada, 2002). The costs to both society and the individual are extensive with regard to both the perpetrators and victims of violence when the costs

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associated with the justice and correctional systems along with the costs associated with rehabilitation, restitution, and restoration of a sense of personal safety are included.

This "preeminent evil" has not escaped the attention of social scientists and extensive research has been devoted to understanding factors that impact crime and criminality. From a sociological perspective, the impact of factors such as anomie, poverty, unemployment, sex, age and culture have all been identified as contributing to crime such that higher crime rates are observed among poor, young, males immersed in antisocial or pro-criminal environments. However, the question remains: Why does *this* poor, young male from a certain environment commit criminal violence while *this other* poor, young male from the same environment does not? The potential to find answers to this difficult question resides within investigations of individual differences and such constructs as personality and self-concept.

Research suggests that certain personality traits, such as narcissism, increase the likelihood of an individual acting aggressively and perpetrating violence against another (Bushman & Baumeister, 1998). Self-concept has also arisen as a candidate for consideration in the etiology of aggression. While self-esteem (how one feels about oneself) has generally been ruled out as a direct cause of aggression (Baumeister, Smart & Boden, 1996), self-complexity (the degree to which certain aspects of the self are differentiated from other aspects of the self) remains a potentially valuable variable in understanding individual differences in aggressive behaviour.

The following includes both (a) a review of theory and research related to personality factors in aggressive and violent behavior, with a focus on the role of narcissism in aggression, and (b) a review of theory and research regarding the role of

self-concept in aggressive behavior with a focus on structural variables of the self-concept. Then, the results of a series of three studies are reviewed. The first, a pilot study, facilitated the adaptation of a measure of self-complexity for use with an incarcerated population and also tested the feasibility of other measures. The second, a preliminary study, explored the relationships among the constructs of narcissism, self-esteem and self-complexity in a sample of 45 federally sentenced offenders. The third and final study was designed to ameliorate a number of weaknesses in the preliminary study, and to further test hypotheses regarding the interaction of narcissism and self-concept in predicting aggressive behaviour. The general aim of this series of studies was to further our understanding of the roles of self-concept and personality in aggression which in turn, may provide insights regarding the treatment and amelioration of aggressive and violent behavior.

CHAPTER 2
LITERATURE REVIEW

2.1 Personality and Violence: Is There a Criminal Personality?

Many attempts have been made over the years to identify and define a uniquely criminal personality. One of the earliest and longest lasting constructs to receive attention was that of the 'psychopathic personality'. The term was first used in the late nineteenth century to refer to patients with severe behaviour disorders. Since its introduction, the term has been used broadly and eventually synonymously with 'sociopath' to refer to individuals with a cluster of personality traits generally conducive to criminal behaviour. These traits include shallow affect, proneness to boredom, manipulativeness, grandiosity, and lack of empathy, remorse or guilt. Currently, the use of the term 'psychopath' is often synonymous with 'antisocial personality disorder', which includes, as one of the diagnostic criteria, unlawful behaviour. Current research suggests that 50-80% of the present criminal population in prison can be diagnosed with antisocial personality disorder (Hare, Hart, & Harper, 1991; Ruegg, Haynes, & Francis, 1997).

One of the first systematic attempts to describe completely the characteristics of a "criminal personality" was the 1979 seminal work by Yochelson and Samenow, consisting of three volumes entitled, "The Criminal Personality". This largely cognitive approach to describing personality focused on identifying criminal thinking patterns and thinking errors. A few of the many thinking errors that, while common to most people, were thought by these authors to have a particular impact on criminal behaviour, included: "closed channel", "victim stance", "fear of fear", "pretentiousness", "lack of

time perspective", and "ownership". Yochelson and Samenow also discussed the phenomenon of the "zero state" which will be addressed later in this review.

Criminality has also been linked to the personality traits of extraversion, neuroticism, and psychoticism (Eysenck, 1964). Extraversion and psychoticism are thought to relate to the failure to develop a conscience while neuroticism is connected with emotional instability (Gudjonsson, 1997). Empirical evidence linking these three personality traits to criminal behaviour has been equivocal. Early reviews found little support for the association of extraversion with antisocial behaviour (Passingham, 1972; Cochrane, 1974). More recent reviews that took into consideration methodological and demographic factors found some support for the role of extraversion in youths and the role of neuroticism in adults (Eysenck & Gudjonsson, 1989). Of the three traits, psychoticism with associated sub-traits of aggressiveness, egocentricity, impulsivity and tough-mindedness, has had the strongest empirical support for an association with criminal behaviour (Cale, 2006).

More recently, Paulhus and Williams (2002) coined the term "the dark triad" to describe three distinct but overlapping personality constructs of narcissism, Machiavellianism and psychopathy. These three constellations of personality traits have in common tendencies toward self-promotion, emotional coldness, duplicity and aggressiveness. Empirical evidence suggests that there is overlap between narcissism and psychopathy (Gustafson & Ritzer, 1995) and between narcissism and Machiavellianism (McHoskey, 1995). Although Paulhus and Williams (2002) proposed that, in combination, the three constellations of personality traits would be predictive of antisocial behaviour, this was not borne out in their empirical research. A wide variety

of self-report and behavioural measures of antisocial behavior were significantly predicted by psychopathy, but not by Machiavellianism or narcissism (Paulhus & Williams, 2002).

2.1.1 Cluster B Personalities

Antisocial personality disorder (a closely related construct to psychopathy) and narcissistic personality disorder are two of the four personality disorders included in the Diagnostic and Statistical Manual (DSM-IV; American Psychiatric Association, 1994) grouping of personality disorders called Cluster B. Also included in Cluster B are borderline personality disorder and histrionic personality disorder. This cluster of personality disorders is often highlighted in studies of personality and criminal behavior because each disorder is thought to include significant deficiencies in empathy.

Cluster B personality disorders have been characterized as "dramatic", "emotional", and "erratic". The underlying theme for persons with Cluster B personality disorders, as noted above, is a general lack of empathy for others. The reason for and expression of this empathy deficit, however, is thought to be different for each of the disorders. Kraus and Reynolds (2001) describe the differing empathy deficits in the Cluster B personalities as follows:

> Persons with narcissistic personality disorder – by definition – do not see others as important enough to warrant empathy. Those with borderline personality disorder typically find themselves too much a victim to have any empathy to spare, and patients with antisocial personality disorder usually cannot even conceptualize empathy (p. 327).

Kraus and Reynolds do not address empathy in histrionic personality disorder. More general research on this cluster of personality disorders and violent behaviour tends to show that it is primarily the antisocial, narcissistic and borderline personalities that are

most relevant to describing and understanding the relationship between personality and crime.

A number of studies have investigated the comorbidity among Cluster B personality disorders. Hillbrand, Kozman, and Nelson (1996) found, in a sample of male forensic patients, that borderline and narcissistic pathologies were common in antisocial individuals but histrionic pathology was generally absent. Stuart, Pfohl, Battaglia, Bellodi, Grove, and Cadoret (1998) found a strong association between antisocial personality disorder and borderline personality disorder while the other personality disorders showed moderate degrees of intercorrelation with the exception of borderline and narcissistic personality disorders. However, a general review of the literature suggests that the co-occurrence of narcissistic personality disorder with antisocial, borderline and histrionic personality disorders is common (Kraus & Reynolds, 2001).

In a study of 39 male forensic inpatients in the Netherlands, 87% of the sample evinced a personality disorder but 42% received the diagnosis "personality disorder not otherwise specified" (Timmerman & Emmelkamp, 2001). In this study, antisocial personality disorder was the most frequently diagnosed followed by sadistic (associated with Cluster B but not included in the DSM-IV; Fiester & Gay, 1991), borderline and paranoid (Cluster A) personality disorder. Prevalent among the most frequently endorsed traits for those diagnosed as "personality disorder not otherwise specified" were traits from the Cluster B disorders.

Warren, Burnette, South, Chauhan, Bale, and Friend (2002) explored the comorbidity across Cluster B diagnoses in a sample of 261 female offenders incarcerated at a maximum-security prison for women. Also examined was the

relationship of these disorders to various patterns of criminality and violence. In this study, violent behaviour was assessed using three measures: 1) incarceration for a violent offence coded according to three categories (current convictions for any violent crime, current convictions for a violent offence other than homicide; current convictions for homicide); 2) the Prison Violence Inventory; and 3) institutional infractions for violent or threatening behaviour. The Cluster B personality disorders, taken as a group, were not predictive of incarceration for a violent crime or violent institutional infractions but were predictive of self-reported violence within the institution. Narcissistic personality disorder predicted current incarceration for any violent crime including murder and for any violent crime excluding murder, with odds ratios of 7.57 and 4.92, respectively. These results suggest a powerful relationship between this particular personality disorder and violent behaviour among incarcerated women. Narcissistic personality disorder was diagnosed in 10% of the sample with rates of comorbidity ranging from 4% (dependent) to 44% (histrionic). These results suggest that the sense of entitlement, grandiosity, interpersonal exploitativeness, lack of empathy, and envy that characterize narcissism may also be correlates of violent behaviour among certain women (Warren, et al., 2002).

Not surprisingly, in addition to the Cluster B personality disorders, sadistic personality disorder has been found to have a higher prevalence among incarcerated populations than among the general population. Berger, Berner, Bolteraurer, Gutierrez and Berger (1999), in a sample of sex offenders, found that 27% met criteria for a sadistic personality disorder. They suggest, on the basis of their findings, that the sadistic personality disorder may be seen as an important sub-dimension of the

antisocial personality disorder, distinct from more exploitative forms of antisocial behaviour with less violence.

2.1.2 Personality Profiles among Criminal Groups

In addition to attempts to define a criminal personality, there have been attempts to identify and classify both adult and young offenders based on their personality profiles. That is, using various self-report measures of personality traits, such as the Minnesota Multiphasic Personality Inventory (MMPI) or the Millon Clinical Multiaxial Inventory (MCMI), researchers have attempted to determine which combinations of personality traits are common to specific groups of offenders.

MMPI profiles have been used to classify offenders into groups based on personality traits with the goal of improving management of large numbers of inmates within correctional facilities. Based on a cluster analysis of the MMPI profiles of three 100-person samples of male juvenile offenders (White, McAdoo, & Megargee, 1973) and several independent replication studies with adult offenders (Nichols, 1980; Mrad, Kabacoff & Duckro, 1983), 10 distinct types were identified and a series of decision rules to aid in classification were developed. The system was found to have good reliability (Dahlstrom, Panton, Bain & Dahlstrom, 1986), and significant differences between groups were found on a broad array of variables including social and attitudinal factors, adult adjustment, institutional adjustment and eventual recidivism (Megargee, 1984; Zagger, 1988). This classification system has been used within correctional institutions to improve management of inmates. For example, when the classification system was used to separate offenders who were judged likely to be highly predatory

based on their profiles from inmates judged likely to be victimized, the rate of serious assaults within the institution dropped 46% (Bohn, 1979).

A review of literature using the Millon Clinical Multiaxial Inventory (MCMI) revealed that antisocial, aggressive-sadistic, passive-aggressive (negativistic), and, to some extent, narcissistic personality disorders, are prevalent in the MCMI profile codes of male spouse abusers (Craig, 2003). However, according to Craig's review, there is no single specific MCMI "abuse profile" and the code types most common among spousal abusers are not necessarily specific to that population. Similar code types are found among samples of males with post-traumatic stress disorder although abusers tend to score lower on anxiety and dysthymia (Dutton, 1995). Similar code types are also found in patients with substance abuse and other psychiatric disorders (Craig, 1995). Additionally, Craig (2003) found that several samples of patients in treatment for domestic violence produced normal MCMI profiles suggesting that domestic violence may not be consistently associated with formal personality disorders. The normal profiles may also have resulted from socially desirably responding. Craig noted that the validity scales were not reported in the studies reporting normal profile results. The element of narcissism in the personality of some patients in treatment for domestic violence might suggest that they feel *entitled* to behave the way they want and feel quite justified in doing so, since they are "special" and "different" from other people.

The MCMI-based empirical findings on psychological/psychometric characteristics of male batterers are similar to findings using other standardized personality assessment instruments such as the Minnesota Multiphasic Personality Inventory (MMPI) (Flourney & Wilson, 1991). Both tests tend to characterize male

spouse abusers as acting impulsively, minimizing and then externalizing blame, being overly aggressive, possessing unmodulated anger, and being prone towards substance abuse (Craig, 2003).

Cluster analysis of the MMPI profiles of a sample of 141 incarcerated male and female juvenile offenders revealed four distinct profiles (two for males and two for females) associated with distinct mental health symptoms (Espelage, Cauffman, Broidy, Piquero, Mazerolle, & Steiner, 2003). It was found that one of the clusters for males, labeled "normative", included no clinically elevated scores while the other, labeled "disorganized", included several clinical scale elevations. For females, one cluster, labeled "impulsive-antisocial" was marked by a clinical elevation on only one clinical scale while the other, labeled "irritable-isolated" was marked by elevations across several scales. The authors concluded that female juvenile offenders appeared to have more acute mental health symptoms as well as relatively more distinct psychiatric profiles than male juvenile offenders (Espelage et al., 2003).

The Millon Adolescent Clinical Inventory (MACI) has been used to examine typologies based on personality traits in a sample of detained male juvenile offenders. Using cluster analysis, Stefurak, Calhoun, and Glaser (2004) identified four "types" of juvenile offenders: disruptive antisocials, agreeable antisocials, anxious prosocials and reactive depressives. In their sample of 103 male adolescents, the largest group consisted of reactive depressives suggesting that internalizing problems may act as a conduit to criminal behaviour distinct from antisocial personality.

2.1.3 Using Personality to Predict Offending

Traditional methods of personality assessment have been used in attempts to predict which individuals or offenders are most likely to go on to commit additional crimes. Some early recidivism prediction research focused on various subscales or profiles in existing personality inventories. For example, the predictive ability of certain MMPI scales (e.g., Scale 4; the Overcontrolled -Hostility scale), code-types (3-4/4-3 codetype; 4-9 codetype;) and profiles (as described in Section 2.1.2) have received considerable empirical investigation, as well as the Socialization subscale of the California Psychological Inventory (CPI-So) and specific MCMI profiles.

Scale 4 Psychopathic Deviate, on the MMPI, was developed in part to attempt to differentiate persons who might become involved in the judicial system from the general population (McKinley & Hathaway, 1944). It covers a wide range of problem areas, including family conflict, problems with authority figures, delinquency, poor school achievement, risk-taking, and impulsivity. The scale was initially described as having fair reliability and McKinley and Hathaway suggested it was able to identify approximately half of the cases that would be diagnosed with psychopathic personality clinically. Empirical research on the personality profiles of delinquent youths has consistently found significant clinical elevations on scale 4 (Hathaway & Monachesi, 1957; Morton, Farris & Brenowitz, 2002)

The MMPI Overcontrolled Hostility scale (O-H) was developed from the MMPI item pool in an attempt to identify assaultive individuals who exert rigid and tenuous control over their aggressive impulses (Megargee, 1966; Walters, Solomon, & Greene, 1982). It has been shown to accurately identify assaultive male offenders and to reliably

discriminate between overcontrolled and under-controlled assualtive psychiatric patients (Lane & Kling, 1979). It has shown limited accuracy, however, when administered to adolescent populations (Truscott, 1990).

Elevations on the O-H scale of the MMPI have also been associated with a 3-4 code type on the MMPI (i.e., the two highest clinical scales are scale 3 and scale 4) (Gearing, 1979; Walters et al., 1982). This code-type was, in turn, initially found to be associated with a history of violent and assualtive crimes (Persons & Marks, 1971; Davis & Sines, 1971). However, subsequent research has failed to find additional support for this association (Buck & Graham, 1978; O'Sullivan & Jemelka, 1993).

An MMPI code-type receiving somewhat more consistent empirical support for an association with criminal behaviour is the 4-9 codetype. Scale 9 (Hypomania,) in combination with Scale 4 (Psychopathic Deviate), was thought to "energize" the pattern associated with scale 4 (Hathaway & Monachesi, 1957; Dahlstrom, Welsh, & Dahlstrom, 1972). This codetype has been found to distinguish between delinquent and general populations of males and females even when intelligence and social status were controlled statistically (Huesmann, Lefkowitz, & Eron, 1978). More recent empirical research has provided preliminary support for considering low scores on Scale 5 (Masculinity/Femininity), in combination with elevations on scales 4 and 9, to increase predictive accuracy (Morton et al., 2002).

The CPI-So is a measure of severe asociality and norm-violating behaviour. It has found some success in identifying antisociality (Dahlstrom, et al., 1972), differentiating delinquents from nondelinquents (Gough, 1987) and predicting patient by treatment outcome (Kadden, Cooney, Getter, & Litt, 1989). Additionally, empirical

research has shown that individuals who begin committing criminal offenses at an early age score significantly lower on the CPI-So than individuals who begin offending at a later age (Ge, Donnellan, & Wenk, 2003). Ge at al. suggest that the CPI-So scale may help identify individuals at higher risk of recidivism because the individuals who began criminal behaviour at an earlier age were also found to be at significantly higher risk for recidivism both at 15-month and 20-year follow-up.

MCMI profiles have also been used in attempts to predict future violent behaviour. In one study, incarcerated offenders with high scores on Schizoid, Narcissistic, Antisocial, Sadistic, Negativistic, Borderline, Alcohol Abuse, and Thought Disorder scales of the MCMI-III were found to be more likely to incur institutional charges during their incarceration (Kelln, Dozois, & McKenzie, 1998). In particular, high scores on the Cluster B scales in combination with high scores on scales reflecting disordered thinking (i.e., Schizoid and Thought Disorder scales) appeared to be the strongest predictor of misconduct. Another study found that scores on the personality scales of the MCMI-III were able to predict subsequent charges for assault or fighting in a sample of 10,637 admissions to the Colorado Department of Corrections (Retzlaff, Stoner, & Kleinsasser, 2002). The authors inferred a personality by environment interaction for certain personality traits. Specifically, high scores on Antisocial or Sadistic scales were associated with more violent behaviour across situations while high scores on Schizoid or Paranoid scales were associated with violent behaviour when triggered by environmental factors such as overcrowding or negative peer interactions.

Overall, research on personality factors and crime has been inconclusive so far, in part due to the multiply determined nature of behaviour in general and criminal

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behaviour in specific (Howells, Watt, Hall & Baldwin, 1997). While it is unlikely that personality factors will be of any use in predicting offending behaviour overall, they may be useful in predicting specific variables associated with offending behaviour, for example anger levels (Wood & Newton, 2003).

2.1.4 Anger and Personality

The relationship between anger and personality has been neglected in spite of the considerable amount of research on personality factors and crime (Eysenck, 1987; Eysenck & Gudjonsson, 1989; Kruger, Schmutte, Caspi, Moffit, Campbell & Silva, 1994). Anger can be defined as a normal and often functional response to aversive states consisting of both cognitive and physiological components (Novaco, 1997). It only becomes problematic when its expression becomes a frequent, inappropriate and/or disproportionate reaction to events (McDougal, Venables, & Roger, 1991; Towl & Crighton, 1996). Many studies indicate anger is a significant predictor of aggression (Buss & Perry, 1992; Novaco, 1994, 1997). Both anger levels (Baron & Hartnagel, 1997) and aggression (defined as hostile, injurious or destructive behaviour) (Eysenck & Gudjonsson, 1989) have been shown to predict general offending behaviour. Age has frequently been considered a mediating factor in the expression of anger with younger offenders more frequently displaying aggressive behaviour than older offenders (Dowden, Blanchette, & Serin, 1999).

Wood and Newton (2003) examined the role of personality and blame attribution in offenders' (69 male Icelandic prisoners) experiences of anger with the goal of determining what influences the expression of anger. They found no differences in the anger level of violent/non-violent offenders based on scores on the Novaco Anger Scale.

Personality traits that were predictive of anger levels included psychoticism and neuroticism as measured by the Eysenck Personality Questionnaire. Recidivism was also predictive of anger levels. No relationship was found between blame attribution and anger. In general, there is little research to suggest that violent and non-violent offenders differ in terms of anger and/or levels of aggression (Wood & Newton, 2003).

2.2 Narcissus and Echo: The Interplay of Narcissism and Self-Concept

The story of Narcissus in Greek mythology warns of the dangers of excessive self-love. Narcissus falls in love with his own reflection in the water. The riches of life pass him by as he devotes himself to continuous self-admiration. The over-inflated self-esteem of Narcissus leads him to feel superior to others and entitled to special treatment, regardless of the cost to others. The lesser-known myth of Echo, thwarted lover of Narcissus, warns of the hazards of a frail self-esteem. When Narcissus fails to reciprocate her intense love and adoration, Echo's sense of self is destroyed and she finds herself lost to the world. While on the surface, Narcissus and Echo appear as though they could be no more different, they may, in fact, represent two sides of a single coin (Kubarych, Deary, & Austin, 2004). These two aspects of self-regard: inflated self-esteem and frail or unstable self-esteem, are thought to co-occur in narcissistic personality disorder and have been linked empirically to aggression.

2.2.1 Defining Narcissism

According to the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 1994), narcissism is characterized by an exaggerated sense of self-importance and uniqueness, an unreasonable sense of

entitlement, a craving for admiration, exploitative tendencies toward others, deficient empathy, and arrogance. Narcissists are strongly motivated to sustain their own and others' perceptions of them as superior beings. They display self-aggrandizement and are prone to fantasies about unlimited ability and power. Although there continues to be ongoing debate regarding the etiology of narcissism, empirical research has elucidated a number of correlates of narcissism including high but unstable self-esteem, affective intensity and variability, high levels of hostility and low empathy. Additionally, there is growing evidence that narcissism is not a unitary construct but rather is composed of a number of factors, some more pathological than others.

Based on a survey of the major theoretical statements and clinical descriptions of narcissism, Aktar and Thompson (1982) concluded that narcissism is comprised of deficits in six areas of functioning and described both overt or readily observable features, and covert, or less observable features of the syndrome. With regard to self-concept, Aktar and Thompson described narcissists as overtly haughty and grandiose with inflated self-regard and senses of entitlement and invulnerability. At the same time, narcissists may be covertly hypersensitive, fraught with feelings of inferiority and worthlessness. More recently, Westen (1994) has provided further elaboration of the narcissistic self-concept. Based on his review of research and theory in the area of narcissism, Westen suggests that narcissism be strictly defined as a cognitive-affective preoccupation with the self, where cognitive preoccupation refers to a focus on the self and affective preoccupation refers to an over-concern with one's wishes, needs, goals, superiority, and perfection.

2.2.2 Etiology of Narcissism: Review of Kernberg, Kohut and Millon

Historically, many personality theorists have speculated about the nature of narcissism, the most prominent being Freud (1950) and the Neo-Freudians (Adler, 1939; Fromm, 1973; Horney, 1939) but including others (i.e., Cattell, 1957, Murphy, 1947, and Murray, 1938). Contemporary theorists continue to struggle to understand the nature and origin of this personality disorder. For example, Kernberg (1980) and Kohut (1976) building from Freud's original psychodynamic theories regarding narcissism, each propose a theory of the etiology of narcissism, as does Millon (1981) from the perspective of his biopsychosocial model.

Freud (1950) spoke of narcissism as involving self-love, self-admiration, and self-aggrandizement while also incorporating a set of vulnerabilities concerning self-esteem and fear of failure. Freud's uses for the term narcissism were multifaceted and included (a) a stage of normal sexual development that occurred between the stages of autoeroticism and object love; (b) the original source and energy for the development of the ego; (c) a type of interpersonal choice wherein the self plays a more important part in the relationship than the real aspects of the relationship; (d) a mode of relating to the environment that is characterized by a relative lack of interpersonal relationships; (e) a mechanism for the establishment of the ego's ideals; (f) a primary ingredient in the development and maintenance of self-esteem; and (g) a conditioning factor in repression (Freud, 1957 as cited in Raskin & Terry, 1988). Freud's multiple uses of the term with both adaptive and maladaptive connotations mirrors current debates regarding the relationship of narcissistic personality features to healthy adjustment.

Current theories regarding the etiology of narcissism can generally be classified as belonging to one of two camps. Some theorists favor the *devaluation* approach (e.g., Kernberg, 1980; Kohut, 1976) proposing that narcissism develops because of parental devaluation of the child at a young age while others favor the *overvaluation* approach.(e.g., Millon, 1981), that narcissism develops because of parental overvaluation.

Kernberg (1976) takes an object relations approach to the etiology of narcissism and stresses the importance of aggression. In Kernberg's (1976) view, a cold, unempathetic mother leads the child to feel unloved. The child, faced with severe frustration, disappointment, deprivation or loss feels overwhelming rage and hate which in turn evokes fear and anxiety that the anger will cause the destruction of the "loved person(s) or loving relationship". The child projects his rage onto the parents while defensively investing in some aspect of the self that his parents value. Out of fear that this rage will destroy the parents, the hostile aggression is "projected" from the internal world of the child onto the external world. The individual develops mechanisms (splitting and projection) to protect the self from the 'bad' world. Kernberg suggests that the ego's loss of integrative ability leads to an inability to differentiate between aspects of the actual and ideal self (and objects), which in turn is seen in the grandiose self of narcissists. Central to Kernberg's thinking is the notion that unacceptable or negative aspects of the self are "split off" from the main self but nonetheless influence the functioning of the self. Thus, for Kernberg, the narcissistic self is pathological. One aspect of the narcissist is intensely ambitious, self-absorbed, and overly dependent on

acclaim. Another facet of the narcissist is characterized by a lack of empathy, emptiness, and uncertainty about identity.

Kohut (1976) on the other hand, proposes that the formation of a grandiose self is a normal phase of development generally occurring in early childhood. He assumes that, at a very early stage, all individuals possess the need to be mirrored (usually by the mother) and the need to idealize (usually the father). He suggests that the grandiosity of childhood represents both the child's desire for merger or identification with the parent who is perceived as omnipotent and the child's need to display his capacities and be admired for them. Narcissism develops out of the parents' failure to meet one or both needs. When this happens, according to Kohut, the child is unable to establish an integrated sense of self and remains fixated or stuck at the early stage of development in which narcissistic needs prevail. Kohut explains the reactive aggression of narcissists as occurring in response to threats to the grandiose self-image when it is brought into question by the words or actions of others. In general then, Kohut's theory indicates narcissism as a disruption of the normal development of the self.

Despite their differences of opinion regarding the etiology of narcissism, both Kernberg and Kohut agree that the self-conceptions of narcissists are characterized by grandiosity and reactivity to self-esteem threat. They also agree that the narcissist's rage reactions are implicated in his or her efforts to maintain, and when threatened, restore a positive internal self-representation. They differ, however, on the role ascribed to aggression and on the level of maladjustment implied by it. The aggression, conflict, and defences that Kerberg sees as pathological symptoms of narcissism, Kohut

interprets as understandable consequences of unmet needs for affirmation and security secondary to empathic failures and failed idealizations.

In contrast to both Kernberg and Kohut, Millon (1981) proposes a social-learning theory of narcissism. This view sees narcissism developing not as a response to parental devaluation but rather as a consequence of parental overvaluation. The child is treated as a special person, provided much attention, and led to believe he or she is lovable and perfect. According to Millon (1981), such unrealistic overvaluation will lead to self-illusions that "cannot be sustained in the outer world" (p. 165). The resulting personality structure is congruent with what is described by Kernberg and Kohut. Both include grandiosity and reactivity to self-esteem threat but attribute it to different etiological sources.

Although there has not yet been empirical research to support one of these three etiological theories over the other two, it has been proposed that there may be more than one type of narcissism (Wink, 1992; Rose, 2002; Jordan, Spencer, Zanna, Hoshino-Browne & Correll, 2003). Specifically, there may be two types of narcissism resulting from these two diametrically opposed developmental paths and further, narcissism resulting from parental devaluation may, in fact, be a defensive adaptation to chronically low self-esteem (Emmons, 1984; Wink, 1991).

2.2.3 Measurement of Narcissism

There have been several attempts to construct a measure of narcissism and the results have been mixed. There have been efforts to use projective measures such as the Thematic Apperception Test (Harder, 1979) and the Rorschach (Exner, 1969; Urist, 1977) to assess narcissism. A Narcissistic Personality Disorder Scale (NPDS) has been

developed using items from the MMPI (Ashby, Lee, & Duke, 1979). It consists of 19 items and has shown some ability to distinguish between individuals with healthy and pathological self-esteem (Solomon, 1982). As well, the Millon Clinical Multiaxial Inventory (MCMI; Millon, 1982) contains a narcissism personality subscale that is consonant with the diagnostic criteria as defined in the DSM-III (American Psychiatric Association, 1980).

The Narcissistic Personality Inventory (NPI, Raskin & Hall, 1979) was also based on DSM-III criteria for the disorder (American Psychiatric Association, 1980); however, the NPI was designed to measure individual differences in narcissism as a personality trait rather than as a pathological personality disorder. The assumption underlying the NPI is that only extreme manifestations of the DSM criteria constitute pathological narcissism. These behaviours when exhibited in less extreme forms are, according to the authors of the inventory, reflective of narcissism as a normal personality trait. It may be useful to have measures of narcissism both at the level of disorder and at the level of normal personality functioning if there is no clear point at which narcissistic traits become narcissistic disorders. In general, it is accepted that there is no sharp divide between normal and abnormal or disordered personalities (Millon, 1982).

A number of studies provide evidence for the construct validity of the NPI. The NPI is positively related to self-esteem (Emmons, 1984; Kernis & Sun, 1994; Morf & Rhodewalt, 1993; Raskin, Novacek, & Hogan, 1991a; Raskin & Terry, 1988). Raskin and Hall (1981) found that NPI scores were positively related to the use of first-person singular pronouns and negatively related to the use of first-person plural pronouns.

Emmons (1981) found significant correlations between the NPI and disinhibition, experience seeking, and boredom susceptibility.

Prifitera and Ryan (1984) administered the NPI and the MCMI to 50 psychiatric patients (mean age 36 yrs). The NPI was most strongly correlated with the Narcissistic scale of the MCMI; slightly weaker correlations were found with the Gregarious-Histrionic and Aggressive-Antisocial scales, which may reflect features associated with narcissism. There was 74% classification agreement between the NPI and MCMI in dividing Ss into high- and low-narcissistic groups. Emmons (1987) suggests, based on a series of three empirical studies showing an association between factors of the NPI and both positive peer ratings and negative indicators of psychological well-being that the adaptive and maladaptive aspects of narcissism appear to co-occur. Emmons proposes that the largely adaptive narcissist or the largely maladaptive narcissist may be a rarity in the general population.

2.2.4 Measuring Aspects or Factors of Narcissism

Narcissism is not a unitary construct but rather is composed of a number of traits which, when taken together, comprise narcissism. As such, measures of narcissism should be able to reflect the multifaceted nature of the construct.

Factor analysis of the NPI by Emmons (1984) using a sample of 451 undergraduates revealed four meaningful and moderately correlated factors: Exploitativeness/Entitlement (E/E), Leadership/Authority (L/A), Superiority/Arrogance (S/A) and Self-absorption/Self-admiration (S/S). A follow-up study of convergent and discriminant validity examined the pattern of correlations between the NPI and several established personality inventories (the Edwards Personal Preference Schedule,

Edwards, 1959; the Sixteen Personality Factor Questionnaire, Cattel., Eber, & Tatsuoka, 1970 and the Eysenck Personality Inventory, Eysenck & Eysenck, 1968). Emmons concluded that the pattern of correlations provided support for the construct validity of the NPI and its factors.

A concern expressed by Raskin and Terry (1988) regarding the factor analysis by Emmons (1984) was that several items loading on the same factors seemed to be addressing somewhat different conceptual dimensions such that one or more of the dimensions underlying participants' responses to the items in the scale were not made manifest in his analyses. Raskin and Terry (1988) consequently performed a principal components analysis of the NPI and found evidence for a general construct of narcissism as well as seven first order components, identified as Authority, Exhibitionism, Superiority, Vanity, Exploitativeness, Entitlement, and Self-Sufficiency. Raskin and Terry's seven components are conceptually similar to Emmons' four doubly-named factors but were thought by Raskin and Terry to better represent the "complexities that are inherent in the narcissism construct" (pg. 893). However, studies published after 1988 using the NPI tend to refer to Emmons (1984) factors rather than to Raskin and Terry's (1988) components.

2.2.5 Emotional Reactivity in Narcissism

The tendency of narcissists to be emotionally reactive has been investigated under a number of different programs of research; some examining the effects of unstable self-esteem, others looking at affective extremity, and still others questioning interpersonal adjustment. For the purposes of this paper, all of these aspects will be

discussed in terms of how they apply to the emotional reactivity observed in connection with narcissism and narcissistic personality traits.

Both Kohut (1976) and Kernberg (1976) spoke of "narcissistic rage" and of a more general emotional lability. This emotional reactivity appears to be specifically linked to feedback about the self. Kernberg (1980) maintains that extreme mood swings are characteristic of narcissistic individuals. Studies that provide support for such narcissism-affect reactivity hypotheses include those by Emmons (1987), Heiserman and Cook (1998) and Rhodewalt and Morf (1998).

Emmons found that scores on the NPI were positively correlated with both positive and negative affect variability. More specifically, Emmons (1987) found that the Exploitativeness/Entitlement factor of the NPI was correlated with greater variability of positive and negative affect as well as greater affect intensity.

Heiserman and Cook (1998) examined the relationship of hostile, depressive and positive affect to narcissistic personality traits as measured by the NPI. They found that narcissists, when asked to recall positive memories, reported more positive affect than non-narcissists. On the other hand, when narcissists were asked to recall shameful memories, they reported more projected hostility in comparison to low scorers on the NPI. This latter finding might be explained by Kernberg (1976), who posits that narcissistic personalities are generally very limited in their ability to fully experience affects that are induced by the superego, notably shame, guilt, and depression. Consequently, negative thoughts about the self that accompany experiences of shame and depression are "split off", denied or projected. This results in paranoia and aggression that is typically externalized rather than feelings of depression that would

result if the thoughts were internalized. However, findings of both slight positive and slight negative correlations between narcissism and depression (Wright, O'Leary, & Balkin, 1989; Watson, Taylor & Morris, 1987) do not offer much support for Kernberg's speculations.

Rhodewalt and Morf (1998) conducted two experiments in which participants, either high or low in narcissism as measured by the NPI, completed a series of tasks in which they first succeeded and then failed. It was found that participants high in narcissism reported greater changes in anxiety, anger and self-esteem following negative feedback on their performance. High and low narcissists did not differ in their emotional response to success. Rhodewalt and Morf suggest that it is because these participants use internal attributions (ability) rather than external attributions (chance) in their initial successes that they experience greater mood and self-esteem reactivity to their later failures. This pattern of extreme reactions to failures or to self-relevant feedback has also been described as 'threatened egotism' and is discussed more fully in a subsequent section.

Emmons (1987) speculates that narcissistic affect intensity and variability may well reflect differences between narcissists and less narcissistic individuals in the structure of their self-representations. He suggests that narcissists may be low in self-complexity or the capacity to differentiate among multiple aspects of the self. This possible explanation of the narcissist's affective reactivity has also been suggested by other authors (i.e., Kernberg, 1976; Rhodewalt & Morf, 1998; and Westen, 1994). If narcissists think of themselves in relatively simple, undifferentiated ways, they would be more likely to experience extreme and variable moods as per Linville's (1985; 1987)

"spillover hypothesis". The self-complexity construct and the spillover hypothesis will be discussed in detail in a later section of this review.

Low self-complexity in narcissism has not been thoroughly investigated empirically but preliminary support for this hypothesis was provided by Emmons (1987). He found that NPI scores were significantly and negatively related to self-complexity in a sample of introductory psychology students. Rhodewalt and Morf (1995) also reported a small but significant correlation between the NPI and low self-complexity. However, in later work by Rhodewalt and Morf (1998), the NPI was unrelated to self-complexity and self-complexity failed to moderate the relation between the NPI and emotional reactivity.

2.2.6 Narcissism, Interpersonal Problems and Response to Feedback

A central theme running through much of the writing on narcissism is that, in addition to differences in the self-conception of the narcissist, the interpersonal relations of narcissists appear to be fundamentally different from those of less narcissistic individuals (Rhodewalt & Morf, 1995). It is hypothesized that the pursuit of self-esteem maintenance and enhancement contributes to the narcissist's frequent experience of interpersonal difficulties. Narcissists are more likely to display antagonism toward and a cynical mistrust of others. They react to self-esteem threats with emotional extremes and tend to denigrate the source of the threat (Morf & Rhodewalt, 1993) and/or devalue the negative feedback (Kernis & Sun, 1994). Narcissists are thought to display extreme affective reactions to both positive and negative feedback. Several recent studies have provided support for this supposition.

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Rhodewalt, Madrian and Cheney (1998) found support for a connection between narcissism and emotional reactivity to interpersonal stresses. In comparison to less narcissistic individuals, narcissists reported greater fluctuations in mood, more extreme moods and greater fluctuations in self-esteem in response to negative interpersonal events. Also, positive interpersonal events were found to decrease emotional instability in individuals scoring high on the NPI. Thus, narcissistic emotional reactivity, particularly with regard to negative emotions, appeared to be closely linked to narcissists' interactions with others.

Bogart, Benotsch and Pavlovic (2004) examined narcissism and reactions to naturalistic social comparisons in a daily diary study. In general, positive affect resulted from downward comparisons and negative affect from upward comparisons. However, these relationships were moderated by narcissism as measured by the NPI. Individuals with higher narcissism scores experienced increased positive affect from downward comparisons and increased hostility from upward comparisons. Further, individuals with higher scores on the Exploitiveness/Entitlement factor of the NPI experienced bolstered positive affect and self-esteem from downward comparisons compared to individuals with lower scores on this factor. The findings suggest that the narcissist's extreme mood variability and reactivity, which have been observed in other research, can be partially accounted for by their sensitivity to social comparison information.

Another source of the narcissists' difficulties with interpersonal relationships may be their deficiencies in empathy. Although deficiencies in empathy are an accepted aspect of narcissism, particularly as one of the Cluster B personality disorders, empirical research on the relationship is limited. Watson, Grisham, Trotter, and Biderman (1984)

found that scores on the NPI correlated moderately and negatively with questionnaire indices of empathy. In particular, the Expoitiveness/Entitlement factor of the NPI was inversely related to three empathy measures and negatively correlated with measures of social desirability. The authors suggest that that the narcissists' "keen insight into social relationships within the context of a disregard for social conventions…makes interpersonal exploitiveness possible" (Watson et al., 1984, p. 304).

2.2.7 Narcissism and Aggression/Anger

Raskin and Terry (1988) credit Freud with the initial recognition of the important role that narcissism plays in aggression (involving the devaluation of others as a defense against the fear of loss of love and the depression that typically occurs when this fear becomes reality). Baumeister and Campbell (1999) state, "narcissism…deserves attention as *the* most relevant self-concept variable for studying aggression" (italics added; p. 219). When the narcissists' inflated but unstable self-esteem is combined with their hypersensitivity to interpersonal feedback, the result may often be a tendency to hostile, aggressive, and even violent responding.

Prior research has not yielded consistent evidence that the global construct of narcissism, as measured by the total score on the NPI, consistently correlates with measures of anger and aggression. For example, while Bushman and Baumeister (1998) found that the total score on the NPI accounted for more variance in experimentally manipulated aggression than scores for each subscale, McCann and Biaggio (1989) found no correlation between the NPI total score and self-reported anger. Papps and O'Carroll (1998) provided some evidence for a relation between narcissism and anger by showing that individuals with high levels of narcissism experienced and expressed

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more anger in a self-report measure than less narcissistic individuals. Hart and Joubert (1996) also found small to moderate correlations between scores on the NPI and scores on the Buss-Durkee Hostility Inventory in a sample of undergraduates. Specifically, higher narcissism scores were associated with higher scores on scales assessing total hostility, assault, negativism, suspiciousness and verbal hostility. Witte, Callahan and Perez-Lopez (2002), suggested that the inconsistencies regarding the nature of the narcissism/anger relationship may be due to different studies assessing different types of anger as well as different aspects of narcissism.

In terms of examining the relationship of anger to specific aspects of narcissism, Witte et al., (2002) found that the Leadership/Authority and Exploitativeness/ Entitlement subscales of the NPI were significantly positively associated with anger scores on the Novaco Anger scale. The Superiority subscale was not associated with anger scores. Raskin and Terry (1988) suggest this subscale may be related more with capacity for status and self-confidence than to anger in reaction to ego-threats or insults.

Emmons (1987) found that the Exploitativeness/Entitlement (E/E) and Self-absorption/ Self-admiration (S/S) factors of the NPI were associated with hostility and aggression on self-report measures of negative affect while the Leadership/Authority (L/A) and Superiority/ Arrogance (S/A) factors were not. Additionally, participants who had high scores on the NPI and who also stated that they were certain of their self-evaluations reported the highest levels of hostility and antagonism. Because of the self-report nature of the measures, it is possible that these findings reflect defensiveness on the part of more narcissistic individuals in that those who claim to be most confident

about their positive self-evaluations are the ones who are most vulnerable under the surface.

A number of studies have reported a relationship between the self-concept and aggression in narcissistic individuals. Raskin, Novacek and Hogan (1991b) conducted several studies with numerous self-report measures and found that narcissism is positively related to grandiosity, dominance, and hostility. Further, Raskin, et al., (1991b), found that in individuals who report high levels of grandiosity, dominance, and narcissism, hostility is frequently used as a way to maintain and inflate self-esteem. However, in the absence of these personality traits (grandiosity, dominance and narcissism), people who express higher hostility report lower self-esteem.

It was noted above that narcissists tend to be emotionally reactive to interpersonal feedback. In two studies conducted by Bushman and Baumeister (1998), support was found for the hypothesis that the emotional reaction to interpersonal feedback tends to be one of hostility and aggression. Additionally, Stucke and Sporer (2002) found that participants high in narcissism and low in self-concept clarity showed the most anger and aggression after failure, whereas participants low in narcissism and high in self-concept clarity reported the highest levels of depression. This suggests that the structure of self-concept interacts with narcissistic personality traits in the expression of anger and aggression.

2.2.8 Narcissism and Sexual Aggression

An interesting theory regarding narcissism, reactivity and a specific type of aggression (sexual aggression) has been proposed by Bushman, Bonacci, van Dijk, and Baumeister (2003). The authors present a number of reasons they believe narcissists

would be more likely than other men to engage in sexual coercion including: 1) their inflated sense of entitlement may make them think that women owe them sexual favours; 2) their low empathy entails that they would not be deterred by concern over the victim's suffering; 3) their tendency to maintain inflated views of self by means of cognitive distortions might help them rationalize away any objectionable behaviours; and 4) their concern with getting others to admire them could lead them to seek out sexual conquests in order to have something to boast about to their peers. These same rationales could apply to other kinds of acting out behaviours in addition to sexual acting-out.

Reactance is a psychological construct defined as negative responses to loss or threats of loss of freedom (Bushman et al., 2003). The three main consequences of reactance are increased desire, attempt to exercise the forbidden option, and aggression toward the source of the prohibition. There are several overlaps between the narcissism component and the reactance component. According to Bushman et al., narcissists have an inflated sense of entitlement, so they should be more prone to reactance, because they are more likely than others to believe they deserve things that they are not getting. Moreover, empirical studies have shown that reactance and narcissism are positively correlated (e.g., Frank, Jackson-Walker, Marks, VanEgeren, Loop & Olson, 1998; Joubert, 1992), such that narcissists are more inclined toward reactance than others.

Bushman et al. (2003) completed three studies to test the prediction that narcissism would constitute a risk factor for sexual coercion (study 1 = questionnaire, study 2 = enjoyment of videotape depiction of rape, study 3 = in vivo refusal by female to provide sexual stimulation in the form of reading aloud a sexually explicit passage).

The first study showed that narcissism correlated positively with rape myth acceptance and negatively with empathy toward rape victims. The second study showed that narcissists responded more favourably to depictions of rape on video (found them more enjoyable and sexually arousing) particularly when the woman in the video has seemingly encouraged the man. The third study showed that narcissists reacted more negatively than others to refusal of sexual stimulation by a female and are more punitive than others toward the woman. The overall results of this series of studies indicated that narcissists displayed both selective empathy and reactance, both of which are theoretically associated with sexually coercive behaviour. Bushman et al. concluded that narcissistic men may be more prone that other men to engage in sexually coercive behaviour, particularly in circumstances in which they perceive a woman to have reneged on an offer of sexual stimulation.

2.3 Self-Concept

There exists significant confusion in both the theoretical and empirical literature with regard to self-concept. This is due in part to the frequent failure of authors to sufficiently define and operationalize the constructs under investigation. The term 'self-concept' has been used interchangeably throughout the literature with terms such as self-esteem, self-regard, self-image, self-perception, self-representation and self-knowledge to name just a few. This use of a single label, 'self-concept' to refer to many conceptually different constructs has compounded the difficulties inherent in studying the ill-defined and intangible construct 'self'.

For the purposes of this review, a distinction will be made between three areas of study regarding the self. First, theory and research may apply to the *content* of self-

knowledge. This will be referred to as 'self-concept' and describes the cognitive dimension of how a person describes him/herself and what information they include in their self-knowledge. The second area of study covered regards the *evaluation* of self-knowledge. This will be referred to as 'self-esteem' and reflects the emotional or evaluative component of one's self-knowledge. The following review of the literature regarding self-concept and self-esteem will focus on the application of these constructs to understanding narcissism, aggression, and offending behaviour rather than providing an exhaustive review of the field. The final area of study concerns the *structure* of self-knowledge. If one accepts the assumption that knowledge about ourselves is, in cognitive terms, similar to our knowledge in other areas, then one must accept that the vast amount of knowledge each person acquires about themselves must have some form of structure and organization. This construct will be referred to as self-structure and will be discussed in the section on self-complexity and self-differentiation. While the use of these distinctions and labels will facilitate discussion of the issues and relevant research, it is understood that the division is, to a certain extent, artificial. In reality, these three areas of self are highly interrelated and interdependent.

2.3.1 Self-Concept as the Content of Self-Knowledge

Although the content of self-knowledge was one of the first areas of study regarding the self, there is limited theory and research in this area specific to narcissism and aggression.

2.3.1.1 Actual versus ideal selves. One aspect of self-concept that has received attention with regard to narcissism is the proposed congruence between the narcissists' descriptions of their actual selves and their descriptions of their ideal selves (based on

Higgins, 1987, self-discrepancy theory). In self-discrepancy theory, the magnitude of difference between one's actual self and one's ideal self is thought to be predictive of depression. NPI-assessed narcissists tend to report a high degree of congruence between their actual self-conceptions and their ideal self-representations (Emmons, 1984; Raskin & Terry, 1988). Interestingly, these ideal selves of narcissists tend to include the characteristics of aggressiveness, omnipotence, competitiveness, narcissism, rebelliousness, and mistrust. Given that high actual/ideal self-congruency typically is taken as evidence of mental health, Raskin and Terry (1988) suggest that the narcissist's ideal self-representation is itself somewhat pathological and speculate that this type of self-congruency represents a form of defensive self-esteem.

2.3.1.2 Self-concept and offending. The little empirical research published on the self-concept of offenders tends to focus either on the self-concept of juvenile offenders or on the impact of having a criminal identity (Geiger & Fischer, 2005). For example, Byrd, O'Connor, Thackrey and Sacks (1993) assessed the self-concept of 40 institutionalized male juvenile offenders in the United States using the Role Construct Repertory Grid (Kelly, 1955) and the Self-Consciousness Scale (Fengstein, Scheier, & Buss, 1975) in order to determine if self-concept could be used as a predictor of recidivism. Although it was predicted that participants with more frequent offending would report more "delinquent" self-concepts, results indicated a statistically insignificant trend in the opposite direction. Byrd et al. interpreted this surprising finding as an indication that offenders who acknowledge their delinquent orientation are better able to apply their personal resources toward control of their behaviour.

In their analysis of self-concept in a sample of adult offenders incarcerated in a medium-security institution, Simourd and Olver (2002) found results contradictory to those reported by Byrd et al. (1993). Using a self-report inventory to assess attitudes and self-views, Simourd and Olver found that criminally oriented self-views (i.e., a criminal self-concept) was linked to criminal conduct outcome criteria along with generic criminal attitudes, specific attitudes about the law and generic rationalizations consistent with criminal subcultures. Although other empirical research has also found support for the connection between having a criminal identity and future criminal behaviour (i.e., Connors, 1997), it appears that the extent to which the individual feels positive or negative about that criminal identity may also be relevant in understanding or predicting future behaviour (Geiger & Fischer, 2005).

As in research on personality and offending, there have been attempts to identify a classification system for offenders based on self-concept. For example, Ford and Linney (1995) attempted to use self-concepts to establish a classification of juvenile offenders. Self-concept was measured using the Piers-Harris Children's Self-Concept Scale (PHSCS), which addresses displays of problematic behaviour, attitudes toward physical appearance, dysphoric mood and anxiety, and popularity with peers. This measure does not appear to be a pure measure of the content of self-knowledge but does fall under the rubric of 'self-concept'. Results suggested that child molesters had the most 'problematic' self-concepts and all offender groups had deficiencies in their ability to engage in critical self-evaluation with regard to their self-concept.

2.3.2 Self-Esteem as the Evaluation of Self-Knowledge

There exists considerably more theory and research regarding self-esteem than the content of self-knowledge. Most conceptualizations of self-esteem focus on the implications of possessing high versus low self-esteem (Kernis, Cornell, Sun, Berry, & Harlow, 1993); however, a growing body of research suggests that, in addition to the valance of self-esteem, stability of self-esteem also has significant implications for adjustment and level of functioning. The stability of self-esteem has been examined both on its own and in the context of what Baumeister, Heatherton and Tice (1993) term 'threatened egotism'.

It is generally accepted that there are significant benefits to high self-esteem. Popular culture presents high self-esteem as a panacea that ensures personal happiness, stable relationships, and even financial success. On the other hand, low self-esteem is thought to be a pathway to personal misery, failure and even violent behaviour. Individuals with low self-esteem, it has been believed, are prompted by their inner self-doubts and self-dislike to lash out against other people, possibly as a way of gaining esteem or simply because they have nothing to lose. However, on the basis of an interdisciplinary review of research findings regarding violent, aggressive behaviour and self-esteem, Baumeister et al., (1996) found no direct link between low self-esteem and aggression.

2.3.2.1 Self-Esteem and aggression. Considerable debate exists about the relationship between self-esteem and aggressive behaviour. Low self-esteem has shown only modest predictive validity for future antisocial behaviour (Heaven, 1996). The relationship between self-esteem and antisocial behaviour in adolescents has been

investigated for many decades; however, considerable controversy remains (Gluek & Gluek, 1950; Baumeister et al., 1996). While initial studies agreed on the presence of low self-esteem in antisocial youth, more recent reports have disputed these findings (Baumeister et al., 1996).

In an effort to clarify the sometimes contradictory research regarding the impact of self-esteem on offending, Vermeiren, Bogaerts, Ruchkin, Deboutte, and Schwab-Stone (2004) examined the potentially differential impact of sub-types of self-esteem. The subtypes considered included perceived family acceptance, academic competence, peer popularity, and personal security. It was found that, in a community sample of Belgian adolescents, subtypes of self-esteem did show differential relationships to property and violent offending. Specifically, low academic competence had the strongest association with both property offending and violent offending while low family acceptance was more weakly related to both types of offending. In males, more so than females, high peer popularity was related to violent offending. Vermeiren et al. proposed that this relationship between peer popularity and violent offending emerges as youth, who experience low esteem in most areas of their life, develop relationships with like peers who serve to maintain or enhance relevant aspects of self-esteem. As will be illustrated below, the finding that antisocial youths maintain high esteem in a single area of their life is consistent with both theories of egotism and with the theoretical "spill-over effect" (Linville, 1985).

Fruehwald, Eher, Frottier, Aigner, Gutierrez, and Dwyer (1998) analyzed the self-concepts of 53 long-term incarcerated sex offenders to research the correlations between self-esteem, assertiveness, feelings towards others and relationships, degree of

violence of the last offence and risk of re-offense. Fruehwald et al. also investigated whether self-concepts change after the offender's entry into the criminal justice system. Self-concept was assessed using the Frankfurt Scales of Self-Concepts (FSKN). The FSKN has ten subscales that assess feelings of competence, ability to cope, vulnerability and opinion of reputation, for example. This measure appears to also address the content of self-knowledge to an extent but emphasizes the evaluative component of self-esteem. The results showed no relationship between sexual offence variables and self-concepts. Also, no relationship was found between self-concept and degree of violence of the last offence, psychiatric diagnoses, or length of individual psychotherapy. This suggests that self-concept is not independently directly related to offending behaviour. One limitation of this study is the small number of participants versus the large number of correlations examined.

Rani, Sinha, and Singh (1989) examined subtypes of self-concept in a matched sample of 217 offenders and 100 non-offenders from Bihar, India (matched on age, sex, education and income). The sample of offenders was divided into seven groups based on type of index offense with group size ranging from 20 to 50. A 15-item inventory was used to measure two-dimensions of self-concept; private self-concept and social self-concept. Self-concept was defined as "an attitude towards one's life-situations" (p.51). Overall, non-offenders reported more positive self-concepts (both private and social). Within different offender groups, arsonists, murderers and "cheats" reported higher private and social self-concepts than sex-offenders, burglars and individuals convicted of assault. As with much of the research on self-concept, the implications of

this study are not clear given the minimal explanation provided regarding the self-concept construct used in the study.

2.3.2.2 Narcissism and self-esteem. As noted earlier, an inflated, grandiose evaluation of self is a central feature of the narcissistic personality. As such, it should be expected that measures of narcissism would correlate positively with measures of self-esteem. This expectation was borne out in a meta-analysis by Campbell (1999, as cited in Foster, Campbell & Twenge, 2003). The meta-analysis of studies measuring narcissism and self-esteem found an average correlation of .29 when self-esteem was measured by the Rosenberg (1965) self-esteem scale. The analysis included the results of 11 studies with a total of 2963 participants.

On one hand, research shows high self-esteem to be associated with a range of mental health indicators while, on the other hand, high self-esteem is associated with narcissism which is in turn associated with increased interpersonal difficulties, and with increased anger and aggression. Emmons (1984) found that NPI scores correlated positively with self-esteem, extraversion, dominance, and independence and negatively with abasement, self-ideal discrepancy, neuroticism, and social anxiety. This was taken as suggesting that some degree of narcissism as measured by the NPI appears to be tapping into the benefits associated with high self-esteem and may not be maladaptive. Emmons (1984) concluded there may be a curvilinear relationship between the self-evaluation (esteem) component of narcissism and adjustment.

2.3.2.3 Problematically high self-esteem. Support for the hypothesis that violence and aggression are more closely associated with inflated than deflated self-esteem can be found throughout a variety of literatures. For example, psychopaths, who

are responsible for a high number of violent and exploitative crimes, tend to have grandiose views of their own superiority (Hare, 1993); many convicted rapists likewise show grandiose, inflated concepts of themselves as well as remarkably self-flattering distortions of events (Scully, 1990); violent groups such as the Nazis and Ku Klux Klan generally operate from a basic assumption of their own innate superiority over others (Baumeister & Campbell, 1999). On a less dramatic note, Baumeister et al., (1993) found evidence that when people allow highly favorable self-views to influence their decisions, they end up committing themselves to overly high goals, thereby increasing their likelihood of failure.

There are a number of conceptualizations of maladaptively high self-esteem. For example, Jordon et al., (2003) conceptualize high self-esteem as being either *secure* or *defensive*. They suggest that some individuals possess positive self-views that are secure and confidently held; whereas others possess positive self-views that are fragile and vulnerable to threat. The individuals with fragile high self-esteem feel good about themselves at the conscious, explicit level but feel relatively negatively about themselves at a less conscious, implicit level. When these individuals' self-views are challenged, the normally less conscious self-doubts may enter awareness resulting in the self-esteem instability and defensive behaviours noted in other research (e.g. Kernis et al., 1993; Harder, 1984).

Another conceptualization proposed by Jordon et al. describes self-esteem as having both an explicit dimension and an implicit dimension. In a series of studies, Jordon et al. found that participants high in *explicit* self-esteem but low in *implicit* self-esteem showed the highest levels of narcissism (which was interpreted as an indicator of

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defensiveness). Additionally, it was found that these individuals exhibited other defensive behaviours including increased self-enhancement. Implicit self-esteem was assessed by measuring response latencies in a word sorting task involving sorting words into categories of 'pleasant' versus 'unpleasant' and 'me' versus 'not-me'. This task was based on the assumption that longer response latencies occur as a result of conflict at an unconscious level between words presented simultaneously from two different self-schemas.

David and Kistner (2000) use a framework for understanding overly high self-esteem that involves investigating positively biased self-views. They hypothesized a link between positively biased self-views and aggression among elementary school-age children. Even after controlling for the effects of gender and ethnicity, perceptual bias was positively associated with level of aggression (both overt and relational). Rejected, aggressive children were significantly more likely to overestimate their competence than average, non-aggressive children. As children became more positively biased, peer reports of aggression increased linearly. David and Kistner conclude that maladjustment in psychological and social functioning occurs when the degree of bias of self-perceptions shifts from moderate to extreme levels. Other empirical studies that have investigated biases in self-perception also find limited benefits as positive self-perceptions shift from moderate to extreme (Assor, Tzelgov, Thein, Ilardi, & Connell, 1990). Additionally, David and Kistner (2000) suggest that extremely negative and extremely positive perceptual biases are related to different but equally harmful difficulties. This suggests a possible curvilinear relationship between bias in self-perception and adjustment, with very negative bias and very positive bias (similar to the

kinds of self-views observed in narcissistic individuals) being associated with negative outcomes. However, the authors caution, the conclusion cannot be drawn that the negative correlates of positively biased self-perceptions outweigh the benefits. This study also does not rule out the possibility that aggression leads to inflated self-perceptions rather than the other way around.

2.3.2.4 Stability of Self-Esteem. Self-esteem is typically conceptualized as a relatively stable tendency to feel good or bad about oneself. However, it has become clear that people differ in the extent to which they exhibit short-term fluctuations in their contextually based self-esteem (i.e., stability of self-esteem). Resent research indicates that differences between and within high and low self-esteem individuals emerge as a function of the *stability* of self-esteem (Kernis et al., 1993). Stability of self-esteem can be defined as the magnitude of fluctuations in momentary, contextually based self-esteem. The tendency to exhibit fluctuations is likely a dispositional quality that interacts with contextual factors to produce specific patterns of fluctuations.

Kernis et al., (1993) and Kernis et al., (1989) suggest that instability of self-esteem impacts high and low self-esteem individuals differently and there is some evidence to support this. Kernis et al., (1993) examined the magnitude of fluctuations in self-esteem over time for both high and low self-esteem individuals. The authors did not include an examination of the nature of the fluctuations. It was found that among individuals with low self-esteem, instability is associated with a heightened concern about avoiding a continuous negative self-view; however, among individuals with high self-esteem, instability is associated with achieving and maintaining a more stable and secure positive self-view.

There is some evidence to suggest that there is a relationship between the stability of self-esteem and violent behaviour. For example, Ragg (1999) used the Personal Relations Inventory (PRI) to track self-concept problems in batterers. The PRI appears to focus mainly on the evaluative component of self-concept and thus, this study is discussed here in the section on self-esteem stability rather than in the section on self-concept as the content of self-knowledge. The PRI measures negative self-concept, externalization of self-concept and stability of self-concept. Ragg found that relationship self-concept and unstable self-concept were significantly related to battering. Unstable self-concept was the strongest predictor of battering (could predict 64% of the batterers). Interestingly, the sensitivity to criticism variable was less able to predict batterers (45%). The results of this study would suggest that stability of self-esteem is a construct worthy of further investigation with regards to understanding violent behavior.

With regard to narcissism, the relationship between narcissism and high or inflated self-esteem has been established and there is both theoretical and empirical support for a relationship between narcissism and unstable self-esteem. Kernberg's (1976) description of the narcissistic personality includes the observation that the narcissist tends to have unstable self-esteem. Kernberg suggests that this is related to a lack of differentiation among an individual's self-representations, ideal self-representations, and ideal object representations. Empirical support for the relationship between narcissism and unstable self-esteem was found by Rhodewalt et al., (1998), who were able to show that narcissistic study participants displayed greater day-to-day fluctuations in their self-evaluations than did less narcissistic study participants. The

instability of narcissists' self-esteem has been more thoroughly investigated under the rubric of 'threatened egotism'.

2.3.2.5 Threatened egotism. The theory of threatened egotism adds another dimension to our understanding of when high self-esteem ceases to be a benefit to the individual and starts to become a liability in terms of aggressive acting-out. The theory suggests that increased self-esteem leads to aggression when an individual's self-views are disputed, particularly if these self-views are inflated or overly positive, as in narcissism. An interdisciplinary review by Baumeister et al., (1996) examined the research findings on violent, aggressive behaviour and self-esteem and found, in addition to the absence of a direct relationship between low self-esteem and aggression, that aggression is most likely to be the result in very high self-esteem individuals following a threat to their ego. Hostile aggression in this context is interpreted as an expression of the self's rejection of esteem-threatening evaluations received from other people.

The theory of threatened egotism posits, more specifically, that an angry reaction to ego-threatening feedback will be directed directly at the source of the feedback. Several studies have confirmed that, after negative feedback, narcissistic individuals are prone to negative reactions directed toward others (e.g. anger), whereas people scoring low in narcissism tend to react with negative emotions such as depression, directed toward the self (Stucke, 2003). Kernis et al. (1993) found that, under ego-threatening conditions, individuals with high but unstable self-esteem tended to externalize the source of the threat and to attack it or actively attempt to undermine the threat's legitimacy. An additional influence on the expression of anger in high but unstable self-

esteem individual is the perception of whether or not the negative feedback was justified with unjustified threats eliciting higher levels of anger and hostility (Kernis, Grannemann, and Barclay, 1989).

In addition to aggression directed at the source of threat, threatened egotism can result in other negative outcomes for the individual. In a study examining self-esteem and self-regulation, Baumeister et al., (1993) found that under optimal conditions that included the absence of an explicit threat to the ego, people with high self-esteem were quite effective at setting appropriate goals and living up to them, thereby maximizing their outcomes. However, in the presence of an explicit threat to the ego, participants with very high self-esteem and positive illusions tended to commit themselves to goals that they were not able to meet. This led to the conclusion that, while high self-esteem may be subjectively pleasant and often advantageous, allowing positive illusions to influence one's decision and commitment processes can lead to failure.

Kernis et al. (1993) found that, among individuals with high self-esteem, instability was related to more favorable reactions to positive feedback, but to more defensive reactions to negative feedback, demonstrating the affective reactivity of narcissists described above. They also found that individuals with unstable self-esteem place greater importance on self-evaluative events as determinants of overall self-worth. This was interpreted to indicate that individuals with unstable self-esteem tend towards greater ego-involvement in everyday activities. That is, they will tend to feel as though their self-worth is dependent on the outcome of everyday evaluations. Kernis et al. (1993) suggest that one potential causal factor related to unstable self-esteem may be poorly developed self-concept. Having a poorly developed self-concept could lead

individuals to rely on, and be more affected by, specific evaluative information, thereby contributing to unstable self-esteem. Kernberg has also implicated poorly developed form or structure of self-concept as an important factor in narcissism.

Researchers interested in criminal behaviour have also noted the effect of self-concept on behaviour; more specifically reactions in some offenders to ego threats or failure experiences. One of the earliest descriptions of the relevance of threatened egotism with regards to offenders was presented by Yochelson and Samenow (1979). They coined the phrase, 'the zero state': a state in which an individual's self-esteem is extremely low and a transient sense of worthlessness, hopelessness and futility is experienced. This state includes a basic view of oneself as nothing, a belief that others agree with this evaluation and a belief that this state of harsh self-evaluation is permanent. This state is all encompassing and intolerable and, according to Yochelson and Samenow, generally results in an angry and aggressive reaction that serves to move the individual out of the 'zero state'. Yochelson and Samenow specify that the 'zero state' and consequent anger generally follow a perceived slight or insult to the individual. This description of events resulting in anger and aggression is congruent with the theory of threatened egotism.

2.3.3 Self-Structure as Self-Complexity and Self-Differentiation

The structure of self-knowledge is one of the most recently identified aspects of the self to receive theoretical and empirical attention and is also, consequently, one of the least thoroughly investigated. It was noted throughout the preceding review of narcissism, self-concept and aggression, that several researchers and theorists have implicated the structure of self-knowledge as a possible explanatory or moderating

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factor in the aggressive reactions of narcissistic individuals (e.g., Kernberg, 1980; Baumeister, Bushman, & Campbell, 2000; Kernis et al., 1993). Rhodewalt et al., (1998) suggest, for example, that the narcissist's affective extremity is a consequence of possessing a highly compartmentalized self-concept. This is consistent with Kernberg's (1975) observation that narcissists frequently engage in defensive "splitting" off of negative aspects of the self. However, there exists very little published research to date that directly assesses the role of self-structure with regards to narcissism and aggression.

One prominent theory of self-structure that potentially has implications for understanding the topic at hand is the theory of self-complexity developed by Linville (1982; 1985; 1987). This final section of this review presents Linville's theory of self-complexity, including a description of the proposed developmental context of self-complexity, a review of the empirical literature relating to the theory, a description of limitations of the theory, and an explanation of the role self-complexity is proposed to play in the relationship between narcissism, self-esteem and aggression in the current studies.

The theory of self-complexity and the closely related 'spill-over' effect was first proposed and empirically tested by Linville (1985). The theory states that the less complex a person's cognitive representation of the self, the more extreme will be the person's fluctuations in affect and self-appraisal. Conversely, when the representation of self is more complex, affect and self-appraisal will be more moderate. For example, suppose an athlete loses a competition and has a simple self-representation in which athletic abilities are closely associated cognitively with abilities in other areas of life. The negative affect and self-appraisal associated with athletic failure will be widespread,

resulting in negative feelings about other areas of the self (if I'm a failure here, I'm a failure everywhere). Linville (1985) refers to this as the 'spill-over' effect. With a more complex self-representation, other areas are not as closely linked and thus are not as affected. Linville proposed that, by maintaining distinctions among various aspects of the self, one is more likely to maintain positive feelings about some aspects, which act as a buffer against negative happenings or negative thoughts about other specific aspects.

Linville's model of self-complexity is based on four assumptions. First, it is assumed that the self is cognitively represented in terms of multiple aspects. These aspects can include traits, roles, physical features, category membership such as gender and race, behaviour abilities, preferences, goals, autobiographical recollections, and relations with others. Self-knowledge is generally too complex to be represented as a unitary cognitive structure but rather, is likely to be multidimensional and hierarchical with many concepts and distinctions corresponding to various roles and aspects of the self.

Second, it is assumed that self-aspects vary in the affect associated with them. Some have positive associations, others have negative associations, but most are likely to have a mixture of both positive and negative associations. This second assumption serves to differentiate self-concept as it is used in Linville's model from the more commonly used construct of self-esteem. Self-concept refers to the aspects of the self while self-esteem consists of the affective appraisal of those aspects.

Third, Linville assumes people differ in the degree of complexity of their self-representation. Complexity in this model is a function of both the number of aspects

that one uses to cognitively organize knowledge about the self and the degree of relatedness of these aspects. She suggests that, just as other knowledge structures develop, self-complexity develops through processes of generalization and discrimination over time with increasing use and additional information. If an individual tends to avoid self-awareness of sources of information about the self, this process will likely be inhibited and the individual would emerge into adulthood not having gone through the process of self-differentiation.

Linville's fourth assumption is that overall affect and self-appraisal are a function of the affect and self-appraisal associated with different aspects of the self. A model in which overall affect and self-appraisal are a weighted average of the affect and self-appraisal associated with individual aspects can approximate this. Important or salient self-aspects will receive more weight that other aspects. This process likely occurs at an unconscious level. In summary, Linville's model of self-complexity suggests that those lower in self-complexity will experience greater swings in affect and self-appraisal, where self-complexity is defined in terms of number and interrelatedness of aspects of self.

In a series of experiments, Linville demonstrated that those lower in self-complexity experience greater swings in affect and self-appraisal following a success or failure experience. Those lower in self-complexity also experienced greater variability in affect over a 2-week period (but not higher or lower affect overall). This link between self-complexity and affective extremity was obtained using both trait- and role-based measures of self-complexity thus demonstrating the generalizability of the link across various conceptualizations of the self.

Additionally, Linville (1987) demonstrated that greater self-complexity acts as a moderator of depression and illness when people are under high stress. Greater self-complexity buffers against those types of health outcomes that are related to stress. Also, self-complexity is a stronger moderator of stress-related depression and illness than a simple count of number of self-aspects or number of activities. Her results show that self-complexity interacts with stress such that those higher in self-complexity will be less adversely affected by negative events when they occur (this does not imply that those higher in self-complexity will generally display higher levels of physical and mental health). The model suggests that the cycle of negative thoughts characteristic of depression may derive from an automatic spreading activation process in which negative thoughts about one self-aspect activate associated negative thoughts in related self-aspects. This process may occur in narcissistic individuals where thoughts regarding entitlement and superiority, or anger in response to insult, in one self-aspect are subject to the automatic spreading activation process.

2.3.3.1 Developmental context of self-complexity. Inherent in Linville's third assumption (that people differ in their degree of self-complexity) is the assumption that self-complexity develops over time with ongoing and increasing exposure to self-relevant information. Theorists prior to Linville have also commented on the development of the structure of self-knowledge and its relation to adult adjustment. For example, Rosenberg (1979) indicated that it is in adolescence that self-concept appears to undergo a qualitative change from childhood. He suggests that individuals begin to examine and evaluate their own values and ambitions during this developmental phase. Perhaps, he suggests, the interaction of the development of formal operational thought,

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changes in bodily experience, and greater awareness of inner states leads to a breakdown of previously held certainties about the self and to a view of the self more in terms of problematic self-hypotheses. The adolescent becomes able to see himself as others see him and to define himself more in terms of the perceptions of specific and generalized others. He or she defines him or herself more in terms of abstract traits or qualities and shifts to focus upon inner thoughts, feelings and phenomenology. Thus, through this maturation process, there is a shift from self-definition in inflexible, concrete absolutes to self-definition in more flexible "shades of gray".

As part of this maturation process, the individual begins to differentiate actual from ideal self-representations. An inability to differentiate idealized from committed ideal self-representations is thought to underlie certain narcissistic disturbances, as noted above (i.e., Emmons, 1984; Raskin & Terry, 1988). In such cases, unrealistic childhood assessments of abilities and equally unrealistic standards for self-love may persist, leaving the person chronically vulnerable to affective problems. The individual is frequently forced to defend an unrealistic and inflexible self-concept from external threats and perceived worthlessness. The differentiation of actual and ideal self-representations is also thought to be critical for the establishment of a capacity to experience guilt and to form and pursue realistic ambitions (Kernberg, 1975). The failure to move through this process of differentiation may leave individuals vulnerable to problems with affect regulation and unable to cope with day-to-day difficulties and disappointments.

In terms of Linville's theory of self-complexity, an immature self-concept would be a simple self-concept, low in complexity. Although empirical research regarding

self-complexity in different developmental periods is limited, there is general support for increasing self-complexity with age (Evans & Seaman, 2000; Jordon & Cole, 1996). For example, Abela and Veronneau-McArdle (2002) found that seventh grade children exhibited higher levels of total self-complexity than third grade children.

2.3.3.2 Self-complexity as a distinct "self" construct. Linville's model of self-complexity is not the only proposed model of self-structure. Other models of self-organization include self-regulation (Carver & Scheier, 1982), self-discrepancy (Higgins, 1987), self-schemas (Markus, 1977), and possible selves (Markus & Nurius, 1986). Additionally, a number of distinct but related constructs can be found in the literature including self-concept clarity, self-concept differentiation and evaluative integration of self-aspects. Given the frequent confusion in the literature when it comes to discussions of variables related to self-concept, it is necessary to explicitly outline how self-complexity is distinct from these other models, specifically the closely related concepts of self-concept clarity (Campbell, Assanand & DiPaula, 2000), self-differentiation (Donahue, Robins, Roberts, & Oliver, 1993) and evaluative integration (Showers, 1992).

Self-concept clarity refers to the extent to which self-views are well defined and includes certainty, temporal stability, and internal consistency of self-views (Campbell et al., 2000). Self-concept clarity may be positively related to self-complexity as high self-complexity may also entail well-defined self-aspects. However, a positive relationship does not mean that the constructs are identical.

Self-complexity is not merely the opposite of self-concept differentiation (SCD) and is therefore not merely the opposite of cohesion within the self (Donahue et al.,

1993). Both involve the mental organization of self-aspects but SCD involves not the number and independence of self-aspects as in self-complexity, but rather the variability of one's traits across roles. SCD refers to the degree to which individuals differentiate their identities, and people high in SCD might be thought to lack coherence and integration among their self-aspects. In contrasting SCD with self-complexity, researchers have suggested that measures of SCD may tap the subjective (and ostensibly negative) experience of a "divided self", whereas self-complexity measures may instead tap the (ostensibly positive) experience of specializing within multiple roles. A recent study revealed that self-complexity (as assessed by a standard card sort task) was uncorrelated with SCD (Constantino & Pinel, 2000 as cited in Koch & Sheppard, 2004).

Self-complexity is also distinct from evaluative integration, which is the mental intermingling of positive and negative information within self-aspects (Showers, 1992). Like self-complexity, evaluative integration represents a construct that describes an individual's mental organization of self-relevant information. However, self-complexity refers to the number of non-overlapping self-aspects while evaluative integration refers to the degree to which positive and negative information within self-aspects are mentally separated. Empirical research demonstrates that the two are generally uncorrelated with an average correlation of .06 between the two constructs (Campbell et al., 2000).

Finally, self-complexity appears not to be a self-presentational variable. It is uncorrelated with variables such as self-monitoring, concern for appropriateness, and protective social comparison (Miller, Omens, & Delvadia, 1991). Similarly, research findings demonstrate that self-complexity is uncorrelated with self-regulatory variables such as self-discrepancy and negative emotions (Gramzow, Sedikides, Panter, & Insko,

2000). Altogether, there is considerable support for considering self-complexity to be a unique psychological variable.

2.3.3.3 Self-Complexity and coping. In sum, self-complexity is proposed to be a characteristic of the self that moderates the impact of stress to predict better coping. Some findings do suggest a positive relationship between self-complexity and coping (e.g., Campbell, Chew & Scratchley, 1990; Dixon & Baumeister, 1991; Linville, 1985, 1987). Others, however, suggest a negative relationship, (e.g., Gara, Woolfolk, Cohen, & Goldston, 1993; Woolfolk, Novalany, Gary, Allan & Polino, 1995; Woolfolk et al., 1999), and still others find no relationship (e.g., Hershberger, 1990; Koenig, 1989 as cited in Rafaeli-Mor, Gotlib & Revelle, 1999).

A recent review of the research by Koch and Shepperd (2004), attempting to test Linville's buffering hypothesis, found that, in general, high self-complexity does correspond to more effective coping with negative events than does low self-complexity. More specifically, studies that examine overall self-complexity (consistent with Linville's [1985, 1987] original theoretical model) suggest that high self-complexity corresponds to lower affective reactivity (e.g., Campbell et al., 1991; Linville, 1985), less negative response to setbacks (e.g., Dixon & Baumeister, 1991; Smith & Cohen, 1993), and lower levels of depression (Linville, 1987). Several studies included in the review found higher negative (but not overall) self-complexity linked to negative outcomes (Gara et al., 1993; Morgan & Janoff-Bulman, 1994; Woolfolk et al., 1995; Woolfolk et al., 1999). Four studies in the review reported no significant differences between high and low self-complexity individuals with regard to symptoms of depression (Koenig, 1989; Hershberger, 1990; Kalthoff & Neimeyer, 1993) and ability

to cope with past trauma (Morgan & Janoff-Bulman, 1994). See Table 2.1 for a summary of the review. Koch and Shepperd hypothesize that variation in the measurement and definition of self-complexity across studies may be the source of the inconsistencies in the findings. Specifically, analyzing overall self-complexity appears to provide different results than analyzing positive and negative self-complexity separately. They conclude that further research is required to clarify the inconsistent findings.

Empirical examination of the effects of self-complexity in the context of narcissism and affective extremity is limited and equivocal to date. As noted previously, Emmons (1995) found that NPI scores were significantly and negatively related to self-complexity in a sample of introductory psychology students. Also, Rhodewalt and Morf (1995) reported a small but significant correlation between the NPI and low self-complexity. However, in later work by Rhodewalt and Morf (1998), the NPI was unrelated to self-complexity and self-complexity failed to moderate the relation between the NPI and emotional reactivity.

Table 2.1

Summary of self-complexity research (Koch & Shepperd, 2004, pg. 746)

Self-Complexity linked to positive outcomes	Self-Complexity linked to negative outcomes	Null Self-Complexity findings
▪ Linville, 1985, Study 1: less negative affect after failure	▪ Gara et al., 1993: greater levels of depression (for negative SC)	▪Koenig, 1989, as cited in Rafaeli-Mor et al., 1999: no significant differences in people with versus without depressive symptoms
▪ Linville, 1985, Study 2: less affective variability over 2 weeks	▪ Morgan & Janoff-Bulman, 1994: more symptomotology and less constructive thinking among trauma and no-trauma groups (for negative SC)	
▪Linville, 1987: lower levels of depression, perceived stress, physical symptoms, and illness		▪Hershberger, 1990: no significant differences in people with versus without depressive symptoms
	▪Woolfolk et al., 1995: higher levels of depression over 2 weeks (for negative SC)	
▪Campbell et al., 1990: less frequent mood changes over two weeks		▪Kalthoff & Neimeyer, 1993: no significant differences in levels of stress, illness, and depression over 2 weeks
	▪ Jordan & Cole, 1996: higher levels of depression among children	
▪Dixon & Baumeister, 1990: greater effort at a task after failure at unrelated task		▪Morgan & Janoff-Bulman, 1994: no significant differences in symptomatology and constructive thinking among trauma and no-trauma groups (for overall SC)
	▪ Woolfolk et al., 1999: greater persistence of depression over 9 months (for negative SC)	
▪Kalthoff & Neimeyer, 1993: lower levels of stress, illness, and depression over 4 weeks		
	▪Rafaeli-Mor & Brown, 2001: higher levels of depression under low stress	
▪Gara et al., 1993: lower levels of depression (for +SC)		
▪Morgan & Janoff-Bulman, 1994: less symtomatology and greater constructive thinking among a trauma group (for +SC)		
▪Sato, 1999: lower levels of depression and negative affect (for +SC)		
▪Rafaeli-Mor & Brown, 2001: lower levels of depression under high stress		

Dixon and Baumeister (1991) applied Linville's notion of self-complexity to the phenomenon of motivated escape from self-awareness. They suggest that, when events carry unfavorable implications about the self, people find it unpleasant to be self-aware

and will avoid thoughts and actions that increase self-awareness. For example, past research has shown that participants who receive negative evaluations choose to spend less time in front of a camera or mirror than participants who receive positive evaluations (Duval & Wicklund, 1972). Other means of reducing self-awareness include alcohol consumption (Hull, 1981), sexual masochism (Baumeister, 1988; Baumeister, 1989) and even suicide attempts (Baumeister, 1990). Dixon and Baumeister (1991) found that individuals with low self-complexity escaped self-focusing cues more quickly than do those with higher self-complexity following a negative experience. Dixon and Baumeister did not investigate whether the tendency to seek escape from self-awareness was associated with or mediated by narcissism.

2.3.3.4 Positive and negative self-complexity: A modification of Linville's measure. Several studies have modified Linville's original measure by investigating whether it is informative to examine positive and negative self-complexity separately. For example, Morgan and Janoff-Bulman (1994) split the concept into a positive and negative component whereby positive and negative self-complexity refers to the structure of positive and negative self-information, respectively. Morgan and Janoff-Bulman found, in a cross-sectional study of college students, that positive self-complexity was associated with better adjustment after trauma than was negative self-complexity. They posit that having numerous and well-differentiated negative self-aspects may not be beneficial but having complex positive self-perceptions would better help to buffer the effect of negative life experiences. They conclude that examining positive and negative self-complexity separately may more adequately predict responses to trauma.

Other investigators have also found differential effects of positive and negative self-complexity in depressive reactions to negative events (e.g., Gara et al., 1993; Woolfolk et al., 1999). From this preliminary research it appears that well-elaborated negative self-aspects (i.e., negative self-complexity) may increase vulnerability to depression (Woolfolk et al., 1995). Because the empirical evidence for positive and negative self-complexity as independent constructs is inconsistent, additional research is needed to understand more thoroughly how positive and negative self-complexity may contribute to coping.

Critics of Linville's measure (Rafaeli-Mor et al., 1999) suggest that the finding of differential effects of positive and negative self-complexity calls into question one of the fundamental assumptions upon which Linville's model is based. Linville asserts that the structure (self-complexity) and evaluation (valence) of self are orthogonal constructs. The above noted findings could be interpreted as evidence contrary to this assertion. An alternative possibility is that structure and evaluation are interrelated rather than strictly orthogonal constructs and that the findings of different effects for positive and negative self-complexity adds support for considering both structure and valence rather than one or the other.

2.3.3.5 The buffering effect in children. Because of its potential as a protective factor in the development of depression, the self-complexity construct has received attention from developmental researchers. Jordon and Cole (1996) measured positive, negative, and total self-complexity, self-compartmentalization, self-reported negative events, and self-reported symptoms of depression, anxiety, and conduct disorder in fourth, sixth and eighth grade public school students. The correlation between positive

and negative self-complexity was relatively large, as was the correlation between positive and negative self-complexity and total self-complexity. It was also found that the measures of self-complexity and self-compartmentalization related positively to depression. The results were consistent across grade level. Controlling for anxiety and conduct disorder did not attenuate these effects. Results for positive and negative self-complexity were essentially equivalent to those for total self-complexity. Interactions between self-complexity and negative event and between self-compartmentalization and differential importance were not significant.

Jordon and Cole (1996) propose that self-complexity in childhood constitutes a response to negative self-relevant information sometimes conveyed by negative events. They conjecture that self-complexity does not buffer the impact of negative events in childhood but may serve as a buffer later in life. For their study, they modified Linville's original measure in three ways: first, a new list of adjectives was chosen to be more suitable to the age group being studied, second, the self-domains were provided for the children, thus eliminating the possibility of any one child generating greater or fewer self-domains than any other child (this was done to allow for a focus on differentiation); and third, the task was computerized.

In a study by Abela and Veronneau-McArdle (2002) designed to test the diathesis-stress component of Linville's model in a sample of 3rd and 7th grade children, neither high levels of total nor positive self-complexity served as a buffer against the onset of depressive symptoms following the occurrence of negative events. However, high levels of negative self-complexity interacted with the occurrence of negative events to predict increases in depressive symptoms in 7th but not 3rd grade children. The

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authors suggest that positive self-complexity may not begin to emerge as a resiliency to depression factor until adolescence and adulthood. The self-complexity task was done in a questionnaire form rather than the original card sort form.

It is difficult to interpret the significance of these findings to the overall theory of self-complexity due to the multiple modifications to the original card-sorting technique advocated by Linville and due to the likelihood that self-complexity does indeed function differently in children than in adults.

2.3.3.6 Critiques of the self-complexity measure. Several attempts to replicate the Linville (1987) findings have failed to support the specific proposition that self-complexity is a protective factor in the development of depression. Rafaeli-Mor et al., (1999) present a critique of the measure and suggest that there are several identified limitations in the validity, reliability, and internal consistency of the self-complexity construct as it has been operationalized by Linville. Hershberger (1990), using a prospective design, failed to find the buffering effect of self-complexity on the level of depressive symptoms experienced after exposure to a stressor. This failure to replicate the original findings calls into question the predictive validity of self-complexity with regard to the development of depression. The findings do not, however, specifically call into question the relationship of self-complexity to affective extremity which is the function of interest in the context of the current research.

Linville's model describing self-complexity as a single latent property has been called into doubt by several studies that found differential effects for positive versus negative self-complexity (Woolfolk et al., 1995; Morgan & Janoff-Bulman, 1994; and Rafaeli-Mor et al., 1999). These studies provide evidence that counters Linville's

assumption that structure and content of self-knowledge are orthogonal and that the valence of the content is unrelated to complexity.

As a response to the problems they identified with the self-complexity measure, Rafaeli-Mor et al., (1999) propose two alternative statistical measures of the self-complexity measure: quantity of self-aspects and overlap among them. This was based on an examination of the internal consistency of the self-complexity measure. Using various split-half techniques, these authors found poor split-half reliability for the self-complexity score as computed by Linville. As an alternative method of computing a score for self-complexity, the authors proposed looking at the number of groups and the degree of overlap between the groups separately. Other research, however, has found that using 'number of groups' is not as sensitive a predictor of affective extremity as is the original statistic measure that considers both number of groups and degree of relatedness simultaneously (Koch & Shepperd, 2004).

A meta-analysis by Rafaeli-Mor and Steinberg (2000) found a small, negative (rather than the predicted positive) correlation between self-complexity and well-being. However, a limitation of the meta-analytic procedure is that collapsing across studies and treating them all as similar and equivalent may obscure important differences between studies that may moderate effects. Studies that used regression analyses could not be included in the meta-analysis because of statistical limitations. Prospective studies, which often use regression analyses, are the most appropriate designs to test the self-complexity model. Consequently, it was studies that were most likely able to fully test the buffering model, that were excluded from the meta-analysis.

An additional caution regarding the use of the self-complexity measure is provided by Koch and Shepperd (2004). In their review of the literature, these researchers found that the results of self-complexity studies depend highly upon the content of the card sorts. They suggest that researchers need to examine the words' specificity because broad words presumably carry multiple meanings across contexts and may distort the complexity measure. Thus, use of words such as "Big-Five" traits (McCrae & Costa, 1989; McCrae & Oliver, 1992) may create spurious positive relationships between self-complexity and overlap across self-aspects. For example, the word "outspoken" may be considered positive or negative, depending on the context. Participants who include "outspoken" in several categories in a card sort may do so not because they are low in self-complexity but because they perceive "outspoken" as holding different meanings across different self-aspects. Although many traits may carry multiple meanings, choosing trait words that carry relatively few meanings may allow for more precise measurement of self-complexity (Koch & Shepperd, 2004).

In spite of the concerns raised above, Linville's self-complexity measure presents as the best, currently available, measure of self-complexity. There appears to be sufficient support for its relationship to affective extremity to merit further investigation.

2.4 Summary

To date, empirical research has revealed a number of relationships among self-complexity, self-esteem, narcissism and aggression. Specifically, narcissism reflects an inflated, unstable opinion of oneself, which is in turn associated with anger and hostility following a failure experience (Emmons, 1987; Baumeister et al., 1996). Also, self-

complexity is a buffer against affective extremity and mediates the desire to decrease self-awareness following failure (Linville, 1985; Linville, 1987; Dixon & Baumeister, 1991). The specific relationship between self-complexity and aggression following failure or ego-threat has not been examined directly.

Additionally, the self-complexity, self-esteem, narcissism and aggression studies described in this review were generally based on student populations. While there is a small amount of research in the area of self-concept using incarcerated offenders as participants, self-complexity has not been examined in this population. It remains to be determined if the relationships among these constructs are the same in a forensic clinical population (i.e., incarcerated offenders) where violent behaviour is much more frequent and self-concept is potentially much different.

A pilot study was conducted with two purposes. The first was to collect self-descriptive words from participants to facilitate the adaptation of Linville's self-complexity measure for an incarcerated population. The second purpose was to determine if the procedure for measuring self-esteem stability planned for Study 1 was feasible for this population. Participants who completed the pilot study were eligible to complete the remaining questionnaires for the main study if they wished, following the completion of the pilot study.

3.1 Method

3.1.1 Sample

Participants were recruited from the violent offender and sex offender units at the Regional Psychiatric Centre (RPC), which is a secure forensic psychiatric, inpatient facility operated by the Correctional Service of Canada. Patients on the violent and sex offender units were given a brief description of the research project by either a research assistant or me during one of their regular group therapy sessions. There were given the option of signing up for the study at that time and a volunteer sign-up sheet was posted on the unit for them to put their name on if they decided to volunteer at a later date. A total of 21 patients volunteered to participate in the pilot study, 10 from the violent offender units and 11 from the sexual offender unit. Patients from RPC are given the option of volunteering for participation in research studies rather than being assigned to participate in order to adhere to ethical practice with vulnerable populations. All participants were male. There were equal numbers of aboriginal and non-aboriginal participants (10 Aboriginal, Metis or Inuit, 10 Caucasian and 1 Black). The average age

of participants was 36.7 years (range = 23 to 60 years). No other demographic information was gathered. All participants except one completed all of the measures included in the pilot study. The one participant who did not complete all measures indicated that he was too busy to continue his participation and withdrew from the study after completing the first task. Therefore, the self-description task results are based on 21 participants responses while the results from the self-esteem measures are based on 20 participants' responses.

3.1.2 Measures

3.1.2.1 Self-description task. Participants completed an open-ended self-description task designed to elicit self-relevant traits and characteristics (single words). This task was based on the methodology described by Linville (1985) used to develop the measure of self-complexity. Participants were presented with a 10-page booklet. On the front of the booklet, the following instructions were printed: "Please write one role you play at the top of each page of this booklet. Then, wait for further instructions. Think of as many as you can. Take as much time as you need." Participants were then instructed to write single-word descriptors of themselves in each role. They were instructed to "try to think of negative as well as positive descriptive words". See Appendix A for the data collection protocol.

3.1.2.2 Self-esteem stability. Repeat administrations of the Culture Free Self-Esteem Inventory – Second Edition (CFSEI-2; Battle, 1992), Form AD were used to establish a measure of self-esteem stability. It consists of 40 items in a forced choice format (the individual checks 'yes' or 'no' for each item), half indicate high self-esteem and half indicate low self-esteem. It takes approximately ten minutes to complete. The

CFSEI-2 contains four subtests which measure general self-esteem, social self-esteem, personal self-esteem and defensiveness (lie subscale). A higher score on the lie scale reflects more honest responding.

The CFSEI-2 is intended to measure an individual's perception of self and can be used to identify individuals who are generally dissatisfied with themselves. The CFSEI-2 has been used as a clinical tool and has also been used extensively for research purposes (Battle, 1992). The operational definition of self-esteem used by the developers of the CFSEI-2 was "the perception the individual possesses of his or her own worth" (Battle, 1992, p. 5). With regard to the sub-scales, general self-esteem refers to the individual's overall perceptions of their worth (16 items); social self-esteem refers to the individual's perceptions of the quality of their relationships with peer (8 items); and personal self-esteem refers to the individual's most intimate perceptions of self-worth (8 items). The lie scale contains 8 items and provides a measure of defensiveness

Form AD of the CFSEI-2 was standardized on adults ages 16 through 65. Test-retest correlations reported in the manual (based on a sample of 127 university students) were as follows: .81 for all participants; .79 for males and .81 for females. Battle suggests that once self-esteem is established, it is generally stable over time and resistant to change. It was anticipated that the high test-retest correlations would facilitate the differentiation between individuals who, like the majority of the population, experience relatively stable self-esteem, and those individuals, of interest in this study, whose self-esteem is vulnerable to frequent shifts.

With regard to the validity of the CFSEI-2, it has been found to have a strong correlation (.71 to .80) with other measures of self-esteem such as the Coopersmith Self-Esteem Inventory (Coopersmith, 1967) (Battle, 1992) and has consistently shown a negative correlation with depression scores (Paananen, 1983; Battle, 1992). Battle's claim that the inventory is "culture free" was based on his comparisons of natives and non-natives conditionally released from Canadian federal prisons (Battle, 1992). The culture-free nature of the inventory has been challenged, however, by Holaday et al., (1996). Holaday et al. found significant differences in responding between groups of public school students on the basis of cultural and ethnic background and suggest that users may need to develop local norms if using the inventory with a population significantly different from the normative populations reported by Battle.

3.1.2.3 Feedback interview. A brief structured interview was conducted with each participant following the completion of the other measures. The interview was designed to elicit feedback from participants regarding their experience in the study to date, specifically regarding the feasibility of the repeated administration procedure. See Appendix B for a copy of the protocol used for the feedback interview.

3.2 Procedure

3.2.1 Self-Description

After volunteering and giving consent to participate, participants were administered the self-description task. They were asked to generate up to 10 different roles they had in life and to write one role at the top of each page in a 10 page booklet. They were then asked to write single word descriptors of themselves in each of those roles, beginning with the role they wrote at the top of the first page. For example, if the

first role listed was "father", the participant would list words that described him as a father on the lines on that page and then proceed to do the same for each of the other roles he had generated. Each page had 30 lines on which they could write words. Participants were told that they did not have to fill every blank line but, if they wished, they could write more words than there were blank lines, making the task essentially an open-ended one. No participant listed more than 25 words for any one role however.

3.2.2 Self-Esteem

Participants were then administered the Culture Free Self-Esteem Inventory (CFSEI-2) every second day for a two week period for a total of seven administrations. Following each administration, participants were also asked to rate their self-esteem on a scale of 1 to 10, with one being "feeling the worst about yourself you possibly could" and 10 being "feeling the best about yourself you possibly could". The time of day of administration varied within and between participants to avoid a time of day bias. The researcher approached participants at random times between 9:00 am and 8:00 pm but did not interrupt group or individual therapy, work schedules or meal times to collect data. The self-rating was piloted along with the questionnaire to determine if this quicker, simpler rating would provide a sufficient measure of self-esteem for future studies. Self-esteem was defined as the participants' mean score across the seven administrations of the measures.

3.2.3 Self-Esteem Stability Measures

The standard deviation of the participants' scores across the seven administrations of the self-esteem measures provided a measure of self-esteem stability.

The standard deviation of scores on the total and subscales of the CFSEI-2 was considered along with the standard deviation of the self-ratings.

3.2.4 Feedback Interview

Following completion of all measures, participants were interviewed by the researcher and asked the questions listed in Appendix B regarding their participation to date. Of particular interest was whether they found the repeated administrations inconvenient or suspicious and whether they were genuine in their responding. They were given the opportunity to volunteer for the remaining part of the study at that time.

3.2.5 Tally Procedure

The words generated in the self-description task were subjected to a rating procedure to determine relative numbers of positive and negative words and a tallying procedure to determine the highest frequency words both overall and between different participants. For the rating procedure, the words were judged by the researcher as having a positive, negative or neutral valence. One word was determined to be unrateable ("erads") and was included in the count with neutral valance words (see Appendix C for a listing of all words classified as neutral).

Prior to completing the tally, words that were semantically very similar were collapsed. In particular, the researcher combined words that had the same root but different suffixes, such as "teach", "teacher" and "teaches" as long as the suffix did not change the meaning of the word. For example, "playful" and "playing" were combined but "player" would not be collapsed with the other two "play" words because it has a different connotation, particularly within this population. Also, if the qualifier, "good"

was used, it was included with other listed words that did not include the qualifier "good. For example, "listener" and "good listener" were collapsed. The words "exhibitionistic", "extraverted" and "outgoing" were also collapsed even though the words are only semantically related rather than nearly identical. This was because the general concept referred to by these words was considered to be a potentially important descriptor of this group.

In general, the word chosen to represent the collapsed group was the word within that group with the highest inter-subject frequency (that is, the word within the group that was listed by the most people). Often the word with the highest inter-subject frequency was also the word with the highest total frequency. For example, "provides" appeared 4 times, "provide" appeared once and "provider" appeared once. Both "provider" and "provide" were listed by one participant, while "provides" was listed by three different participants. These words were collapsed and "provides" was chosen to represent this group because it has the highest inter-subject frequency of the words in the group. If two words were tied for highest inter-subject frequency then, the word with the higher total frequency was chosen.

There were two exceptions to these rules. First, if the word with the highest inter-subject frequency within a group was a role rather than a descriptive word, then the word with the next-highest inter-subject frequency was chosen. For example, "leader" appeared three times and "leads" appeared once. In this case, "leads" was chosen to represent the group because it was a descriptive word and because the more frequent word "leader" is a role. Second, if the highest inter-subject frequency was counted for a two-word descriptor like "talk to", the next most frequent word was selected, in order to

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maintain consistency in the list of single word descriptors. See Appendix D for the total and inter-subject frequencies of words before and after being collapsed into semantic groups. Once the semantically similar words were grouped together (collapsed), the tally was completed. The number of times the word appeared in total, including when repeated by the same participant was labeled "total frequency". The number of participants who used the word was called "inter-subject frequency".

This tally procedure was not identical to the procedure used by Linville (1982) in the development of the original list of traits used in the card sort. While Linville did ask participants to generate traits in an open-ended task, she requested that they list traits to describe college-students in general and she did not ask them to organize their descriptive words according to roles. Linville used independent raters to select trait words based on whether the word was descriptive of the population being studied rather than using a tally based on frequency.

3.3 Results

An alpha level of .05 was used for all statistical tests.

3.3.1 Self-Description Task

The 21 participants generated a total of 1207 self-descriptive words on the self-description task. A total of 164 different or unique self-descriptive words were generated. The lower number of *different* words than total words (1207) is due to the repetition of many words both within one participant's response booklet and between the different participants. Any single word could be repeated by a participant within his self-description task as many times as he wished. For example, he may list the word

"loving" under the role "father", "son", and "husband"; thus contributing three to the total word count but only one to the count of unique words. Table 3.1 lists the 33 most frequent words based on both "total frequency" and "inter-subject frequency". Notably, over 50% of the participants used the words "protective", "listens" and "helpful" to describe themselves and over 70% of participants listed the words, "loving", "caring" and "honest" in their self-descriptions.

Because the extensive repetition of a certain word by one participant can inflate the overall frequency of that word, the inter-subject frequency rather than the total frequency was deemed to be the most appropriate standard on which to base the selection of the final words. Inter-subject frequency is more likely to identify words used by more people to describe themselves and thus be more representative of the group. It was found that 31 words were used by 5 or more people and all of these words, with one exception, were accepted for the final list. The exception, "learns", was dropped from the list because it was deemed to be overly specific and possibly situation-specific because the participants were all enrolled in a cognitive-behavioral treatment program.

Table 3.1

High frequency words (total versus inter-subject frequency)

	Total Frequency /1207 (%)	Inter-subject Frequency	(Final List)	Total Frequency	Inter-subject Frequency /21 (%)
Loving	45 (3.7)	16	Loving	45	16 (76.2)
Caring	41 (3.4)	15	Caring	41	15 (71.4)
Honest	37 (3.1)	15	Honest	37	15 (71.4)
Helpful	28 (2.3)	11	Helpful	28	11 (52.4)
Respectful	24 (2.0)	6	Listens	23	11 (52.4)
Listens	23 (1.9)	11	Protective	21	11 (52.4)
Protective	21 (1.7)	11	Happy	18	8 (38.1)
Happy	18 (1.5)	8	Supportive	16	7 (33.3)
Supportive	15 (1.24)	7	Thoughtful	12	7 (33.3)
Patient	14 (1.16)	6	Respectful	24	6 (28.6)
Kind	14 (1.16)	5	Patient	14	6 (28.6)
Strong	13 (1.08)	5	Mean	12	6 (28.6)
Thoughtful	12 (0.99)	7	Open-Minded	10	6 (28.6)
Mean	12 (0.99)	6	Angry	9	6 (28.6)
Lonely	12 (0.99)	5	Positive	9	6 (28.6)
Smart	11 (0.91)	5	Hard-working	8	6 (28.6)
Open-minded	10 (0.83)	6	Learns[a]	8	6 (28.6)
Loyal	10 (0.83)	4	Proud	8	6 (28.6)
Angry	9 (0.75)	6	Selfish	7	6 (28.6)
Positive	9 (0.75)	6	Dependable	6	6 (28.6)
Friendly	9 (0.75)	5	Kind	14	5 (23.8)
Hard-working	8 (0.66)	6	Strong	13	5 (23.8)
Learns	8 (0.66)	6	Lonely	12	5 (23.8)
Proud	8 (0.66)	6	Smart	11	5 (23.8)
Reliable	8 (0.66)	5	Friendly	9	5 (23.8)
Understanding	8 (0.66)	5	Reliable	8	5 (23.8)
Giving	8 (0.66)	4	Understanding	8	5 (23.8)
Motivated	8 (0.66)	4	Aggressive	7	5 (23.8)
Talks	8 (0.66)	4	Trusting	7	5 (23.8)
Responsible	8 (0.66)	2	Good	6	5 (23.8)
Selfish	7 (0.58)	6	Provides	6	5 (23.8)
Aggressive	7 (0.58)	5	Loyal	10	4 (19.0)
Trusting	7 (0.58)	5	Controlling	6	4 (19.0)
			Confident	7	4 (19.0)

[a] dropped from the final list

There were 20 words with an inter-subject frequency of 4 (Table 3.2). To select among these words for the remaining three slots in the word list, total frequency was

considered. Of these 20 words, "loyal" had the highest total frequency (10) and was thus accepted for the final word list. Of the remaining words with an inter-subject frequency of 4, "controlling" and "confident" were chosen for inclusion in the final list. "Controlling" was chosen because it would add to the word options with negative valence and "confident" was chosen because it was the next highest frequency word that was relatively semantically unique in comparison to other words on the list.

Table 3.2

Inter-subject counts of words with intra-subject frequency of four

	Intra-Subject Frequency	Inter-Subject Frequency		Intra-Subject Frequency	Inter-Subject Frequency
Loyal[a]	10	4	Creative	5	4
Confident[a]	8	4	Fun	5	4
Motivated	8	4	Punctual	5	4
Talks	8	4	Thankful	5	4
Absent	7	4	Assertive	4	4
Giving	7	4	Flexible	4	4
Active	6	4	Forgiving	4	4
Careful	6	4	Generous	4	4
Controlling[a]	6	4	Leads	4	4
Challenges	5	4	Willing	4	4

[a] Words chosen for inclusion on the final list.

In comparison to the word list used by Linville (1985), the adapted word list had a much lower proportion of negative valence words. Linville's list included 14 positive, 15 negative and 4 neutral words. The adapted list on the other hand contained 27 (81.8%) positive, 6 (18.2%) negative and 0 neutral words. Across participants, 109

(66.5%) of the unique words generated had a positive valence (e.g., kind, loving, giving) and 55 (33.5%) had a negative valence (e.g. lonely, absent, mean). However, the majority of the words with a negative valence had a very low frequency, generally reported by just one or two participants once (Table 3.3). This predominantly positive word list was thought to accurately reflect the self-concepts of the participants and no problems with its use in the self-complexity card-sorting task were anticipated.

Each individual participant's word lists were examined to determine the total number of words and the total number of unique words generated by each participant. Proportions of positive, negative, and neutral valence words for each participant were calculated and the number of words from each individual participant that appeared on the final (adapted) list or on Linville's original word list was also determined (Appendix E). Additionally, these counts and proportions were averaged across participants to develop a picture of the average participants' word list. Table 3.4 shows the results averaged across the participants and also provides the ranges in brackets under each of the counts and proportions. The average participant, for example, generated a total of 57 words (38 different words); an average of 11 of those words was words chosen for the final list and an average of one of those words appeared on Linville's list. This would suggest that the new list is more representative of this population's spontaneous self-descriptions than Linville's list.

Table 3.3

Words with negative valence (not included in the final list)

Inter-Subject Frequency		
3	2	1
Stubborn	Dishonest	Embarrassment
Frustrated	Failure	Anxious
Trapped	Impatient	Disrespectful
Violent	Sad	Hurtful
	Greedy	Isolated
	Manipulative	Abused
	Stressed	Alone
	Perfectionistic	Argumentative
	Resentful	Ashamed
	Scared	Avoidance
	Abusive	Embarrassed
	Afraid	Hopeless
	Confused	Hurting
	Dangerous	Impulsive
	Disguised	Irritated
	Emotional	Irritating
	Lazy	Loser
	Lost	Regretful
	Nervous	Unforgiving
	Ruthless	Unhappy
	Unpredictable	Unloved
	Worrisome	

Table 3.4

Self-descriptive task results: Averages across participants (N = 21)

	Total list (Including repeated words)	Total List (Unique words)	Final list	Linville's List
MEANS				
Number of words	57.48	38.95	11.09	1.38
(range)	(14-140)	(13-89)	(1-23)	(0-4)
Positive valence	39.62	24.76	9.57	0.76
(range)	(8-78)	(7-50)	(1-17)	(0-3)
Negative valence	13.71	10.62	1.52	0.48
(range)	(1-51)	(0-38)	(0-6)	(0-3)
Neutral valence	4.14	3.81	-	0.14
(range)	(0-16)	(0-16)		(0-1)
% Positive*	68.93	63.57	86.29	55.07
% Negative*	23.85	27.27	13.71	20.24
% Neutral *	7.20	9.78	-	11.11

* based on average words generated rather than the average % across participants.

Overall, participants generated significantly more positive than negative words, t (20) = 18.9, $p < .001$. The total number of different words generated was positively correlated with both the number of different positive words generated ($r = .88, p < .001$) and the number of different negative words generated ($r = .79, p < .001$). The number of different positive words and the number of different negative words were also correlated ($r = .47, p = .03$). The number of neutral words was not correlated with the

number of different total ($r = .27$, $p = .24$), positive ($r = .05$, $p = .82$) or negative words ($r = .02$, $p = .92$). Generally, a higher number of words per participant was associated with more positive and more negative words (Table 3.5).

Table 3.5

Correlation matrix of descriptive word counts (N = 21)

	Total Words	Total + Words	Total - Words	Total Neutral Words	# Diff Words	# Diff + Words	# Diff - Words
Total + Words	.91**	-	-	-	-	-	-
Total – Words	.77**	.47*	-	-	-	-	-
Total Neutral Words	.19	.03	.04	-	-	-	-
# Diff Words	.93**	.79**	.79**	.21	-	-	-
# Diff. + Words	.83**	.89**	.46*	.001	.88**	-	-
# Diff. – Words	.73**	.44*	.98**	-.02	.79**	.47*	-
# Diff. Neutral Words	.22	.05	.08	.99**	.27	.05	.02

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

3.3.2 Self-Esteem and Self-Esteem Stability

See Table 3.6 and 3.7 for the means, standard deviations and ranges of the self-esteem and self-esteem stability measures. According to normative information on the CFSEI-2 (Battle, 1992) based on a sample of 585 adult males and females, the mean CFSEI-2 total score of the present sample ($M = 23.08$, $SD = 6.54$) is equivalent to a t score of 50.

Table 3.6

Descriptive statistics of self-esteem measures ($N = 20$)

		M	SD	Range
CFSEI-2*	Total	23.08	6.54	9.00 - 31.40
	Social subscale	5.93	1.58	2.43 – 7.86
	General subscale	11.67	3.63	3.86 - 15.86
	Personal subscale	5.92	1.57	1.17 - 7.86
Self-Rating		6.83	1.42	4.00 - 9.21

Note. The Lie subscale was not examined in the pilot study.

* See pg. xiv for a list of all abbreviations used in this document.

Table 3.7

Descriptive statistics of self-esteem stability measures ($N = 20$)

		M	SD	Range
S.D. of CFSEI-2	S.D. (Total)	1.80	1.12	0.69 - 4.43
	S.D. (Social)	0.75	0.50	0.00 - 2.29
	S.D. (General)	1.19	0.75	0.38 - 3.10
	S.D. (Personal)	0.74	0.32	0.38 - 1.46
S.D. Self-Rating		0.75	0.69	0.00 - 2.67

The CFSEI-2 total score and the self-ratings of self-esteem ($M = 6.83$, $SD = 1.42$) were positively correlated across the seven administrations ($r = .66$, $p = .002$),

providing evidence of convergent validity for the brief self-rating technique of measuring self-esteem. The two measures of self-esteem stability (i.e., the standard deviations of the CFSEI-2 total ($M = 1.8$, $SD = 1.12$) and self-ratings ($M = 0.75$, $SD = 0.69$) across administrations) were also significantly correlated ($r = .52$, $p = .02$). There was a significant negative correlation between the mean self-rating and the standard deviation of the CFSEI-2 ($r = -.59$, $p = .01$), such that increasing self-rated self-esteem was associated with less variability in the CFSEI-2 scores (i.e., those with higher self-esteem reported more stable self-esteem). See Table 3.8 for a summary of these analyses.

Table 3.8

Correlations between self-esteem and self-esteem stability ($N = 20$)

		Self-Ratings	
		Self-Esteem	Variability
CFSEI-2	Total	.66**	-.21
	Social	.59**	-.38
	General	.74**	-.06
	Personal	.31	-.27
CFSEI- 2 Variability	Total (S.D.)	-.59**	.52*
	Social (S.D.)	-.57**	.54*
	General (S.D.)	-.57**	.32
	Personal (S.D.)	-.64**	.32

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

While the total number of words generated by a participant on the self-description task was not significantly correlated with any of the measures of self-esteem or self-esteem stability (see Table 3.9), the total number of *positive* words generated was

significantly positively correlated with the mean self-rating of self-esteem ($r = .52$, $p = .02$) but not the mean CFSEI-2 score ($r = .28$, $p = .23$). The total number of negative words generated by a participant was not significantly correlated with any of the measures of self-esteem or self-esteem stability.

Table 3.9

Correlations of self-description words, self-esteem and self-esteem stability ($N = 20$)

	Self-Esteem		Self-Esteem Variability	
	Mean CFSEI-2 (Total)	Mean Self-Rating	S.D. CFSEI-2 (Total)	S.D. Self-Rating
Total Words generated	.19	.43	-.36	.11
% Positive	.26	.29	-.23	-.31
% Negative	-.25	-.35	.22	.36
Total Unique Words	.15	.36	-.26	`.09
% Positive	.18	.25	-.19	-.33
% Negative	-.12	.07	.18	.02

3.3.3 Feedback Interview

The primary purpose of pilot testing the self-esteem stability measure was to assess participants' reactions to the repeated administrations of the CFSEI-2 and self-rating. This information was collected during a brief interview (see Appendix B for interview protocol). During this feedback interview, all participants indicated that they "read all items during each administration of the questionnaire". All participants also indicated that they felt the questionnaire and self-rating accurately reflected their level

of self-esteem and that the repeated administrations were not inconvenient. Seven participants reported some concern regarding the relevance of certain items to incarcerated individuals (e.g., questions regarding having few friends).

Most of the participants had difficulty recalling specific items on the questionnaire in order to respond to questions 4 (Which one item do you think you were most likely to change your answer on from time to time?) and 5 (Which one item do you think you were least likely to change your answer on from time to time?). All twenty individuals who completed the seven administrations of the CFSEI-2 indicated interest in completing the remaining questionnaires for Study 1.

3.4 Discussion

The first main objective of the pilot study was to adapt the self-complexity measure developed by Linville (1982) with university students for use with an incarcerated population of adult male violent and sexual offenders. An open-ended self-description task was administered to facilitate the adaptation. The results of the open-ended self-description task supported the assertion that the words used by Linville (1982) in her original self-complexity card sort were not appropriate for this population of incarcerated violent and sexual offenders. The words generated by participants in the pilot study suggest that these individuals are more likely to use predominantly positive words rather than a balance of positive and negative words to describe themselves. The negative words that were used tended to be idiosyncratic (i.e., used by only one or two participants) while certain positive words ("loving", "caring", and "honest) were used widely (by more than 50% of the participants). Given that the self-complexity card sort is meant to be a measure of the structure of self-knowledge, rather than a qualitative

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evaluation of that knowledge, the higher proportion of positive versus negative words was not anticipated to limit the utility of the adapted measure.

The second objective of the pilot study was to determine if the self-esteem stability measure was feasible. No difficulties were encountered with regard to the repeated administrations of the CFSEI-2. Participants reported that they did not find the repeated administrations bothersome or intrusive and there were no problems with attrition from the study. The attrition of the one participant who withdrew from the study following the self-description task was unrelated to the self-esteem stability methodology.

Additionally, results of the pilot study demonstrated that the mean self-esteem reported by the participants was similar to the mean self-esteem reported by normative groups in the general population. The two measures of self-esteem (brief self-rating and CFSEI-2 questionnaire) and the two measures of self-esteem stability (standard deviations of brief self-rating and CFSEI-2) were significantly correlated. This suggests that it may be possible to use only the brief self-rating measure to evaluate global self-esteem in future studies.

In this pilot sample, self-rated self-esteem was associated with the stability of scores on the CFSEI-2 and with the number of positive words generated in the open-ended description task. Those who rated their self-esteem high appeared to have more stable self-esteem or conversely, those with stable self-esteem rated their self-esteem higher. These individuals also spontaneously generated more positive words when describing themselves. Self-esteem was not, however, related to the number of negative words generated. The relationship between self-esteem and self-esteem stability may

have been due to a ceiling effect or a response style whereby those individuals who rate

their self-esteem as particularly high are also those individuals who are not likely to

admit to drops in their self-evaluation.

CHAPTER 4
STUDY 1

Study 1 was designed to examine certain relationships between narcissism, self-esteem, self-esteem stability, self-complexity and acting-out. As discussed in the literature review, prior research has demonstrated that narcissistic personality traits are positively correlated with self-esteem (Raskin et al., 1991a). This study attempted to replicate this finding. Narcissism was measured using the Narcissistic Personality Inventory (NPI) and the MCMI-III while self-esteem was measured using the CFSEI-2 and a brief self-rating scale of 1 to 10. Prior research has shown that individuals with narcissistic traits tend to have unstable self-esteem (Emmons, 1987). This study also attempted to replicate this finding. Self-esteem stability was defined as the standard deviation of the mean self-esteem score, both on the brief self-rating scale and on the CFSEI-2. This study tested several additional hypotheses that had not been addressed in previous research.

First, it was expected that narcissism (as measured by the NPI and MCMI-III) would be negatively correlated with self-complexity scores (as measured by the self-complexity card sort measure adapted from Linville (1985) in the pilot study). Second, it was expected that self-complexity would be positively correlated with self-esteem stability but not correlated with mean self-esteem score (as measured by the standard deviation of the self-esteem measures and the mean score of the self-esteem measures across the data collection period, respectively). Third, it was expected that the mean self-complexity scores of this sample would be lower than the self-complexity scores reported in previous research using samples of university students and would be positively correlated with age. Fourth, self-complexity and self-esteem stability were

expected to be negatively correlated with other Cluster B personality traits (antisocial, histrionic, and borderline) as measured by the MCMI-III. Finally, it was expected that there would be an interaction between self-complexity and personality such that high self-complexity would not be related to either "acting-in" or "acting-out" as measured by the Behavioural Stress Response Survey (BSRS) (Parker, Roy, Wilhelm, & Mitchell, 2000); low self-complexity and Cluster B personality traits would predict an "acting-out" behavioural stress response style (as measured by the BSRS); and low self-complexity and depressive personality traits would predict an "acting-in" behavioural stress response style (as measured by the BSRS) better than depressive traits alone.

4.1 Method

4.1.1 Sample

Following the completion of the pilot study described above, additional participants were recruited over a period of three months in the manner described for the pilot study. All participants were again recruited from the violent offender and sex offender units at the Regional Psychiatric Centre (RPC). A total of 48 patients volunteered to participate in the study (including the 21 who initially volunteered for the pilot study). Subsequently, the data of two participants were removed from the study after they withdrew their consent to participate and the data of one further participant were removed because he was transferred away from RPC prior to the completion of all measures. Regarding the two participants who withdrew, one stated that he felt "like a lab rat" and could not continue and the other stated that he volunteered in order to spend time talking with the researcher and did not want to complete the questionnaires.

A total of 45 participants completed all of the measures and were included in the final analyses. There were 24 violent offenders and 21 sexual offenders, all male. Twenty-two of the participants listed their race as Caucasian, 19 as Aboriginal, Métis or Inuit, two as Asian and two as Black. The average age of participants was 32.0 years (range = 20 to 60 years). No additional demographic information was collected.

4.1.2 Measures

4.1.2.1 Self-Complexity card sort. This is a measure of self-differentiation, reflecting the number and distinctiveness of attributes an individual uses to think about himself or herself. It is considered to reflect the structure of self-knowledge. As per the methodology suggested by Linville (1982), participants were given a packet of 33 randomly ordered index cards and 10 blank cards. On each index card was printed one self-descriptive word from the word list developed in the pilot study. The cards were also numbered 1 through 33. Participants were asked to use these traits to describe themselves and were asked to think about themselves and "sort those traits that are descriptive of you into groups according to which traits you think belong together" (Linville, 1985). The detailed instructions given to participants are presented in Appendix F. Traits could be sorted on any meaningful basis and participants could form as many or as few groups as they wished. They were instructed to "form groups until you feel that you have formed the important ones". The same traits could be placed into multiple piles and participants were not required to use every trait.

Participants' responses were recorded by the researcher on a sheet containing 10 columns. The researcher recorded by number the cards in each of the piles formed by

the participant. These groups of numbers were then used to calculate the H statistic which is also the participants' self-complexity score.

The H statistic, developed by statisticians who studied information processing (Attneave, 1959; Scott, Osgood, & Peterson, 1979) and adopted by Linville (1985, 1987), has consistently been used in past research as a measure of self-complexity and was used in the present study as well:

$$H = \log_2 n - (\Sigma_i n_i \log_2 n_i)/n$$

In this equation, n = the total number of adjectives a participant could have selected and n_i = the number of adjectives that appear in a particular group combination (e.g., the number of adjectives that appear in only one grouping, those that appear in two groupings, etc.). A group combination is defined by a unique pattern of "describes me" and "does not describe me" responses for a given trait word. For example, a particular trait word can be coded by a participant who generated four groups as 1 (*describes me in the first group*), 1 (*describes me in the second group*), 0 (*does not describe me in the third group*) and 1 (*describes me in the fourth group*). The pattern for this adjective would therefore be 1-1-0-1. All trait words with this pattern would make up one group combination (Linville, 1982, 1987 as described in Abela & Veronneau-McArdle, 2002).

A high self-complexity score results from having a large number of self-aspects that are non-redundant in terms of the features that describe them. Conversely, a low self-complexity score results from either having few self-aspects or from having many self-aspects that are highly redundant in terms of the features that describe them (Linville, 1985). Previous research has shown self-complexity to be relatively stable (*r*

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= .70, *p* < .001, over a two week period) and that changes in self-complexity over small periods of time (two weeks) are not a function of life events (Linville, 1987).

4.1.2.2 Millon Clinical Multiaxial Inventory-III (MCMI-III). The MCMI-III is a widely used measure of personality. Items are reflective of the DSM-IV criteria for personality disorders. This inventory consists of 175 true/false items and requires an eighth grade reading level. It is relatively short in relation to other comparable personality inventories and therefore, more easily completed. There is evidence of good internal consistency, reliability and validity (Millon, Davis, & Millon, 1997).

The MCMI-III consists of four validity scale (validity index, disclosure, desirability, and debasement), 10 scales measuring clinical personality styles or disorders (schizoid, depressive, avoidant, dependent, histrionic, narcissistic, antisocial, compulsive, passive-aggressive, and self-defeating), three scales measuring more severe personality dysfunctions (schizotypal, borderline, and paranoid), eight clinical syndrome scales (anxiety, bipolar, manic, somatoform, dysthymia, alcohol dependence, drug dependence, and posttraumatic stress disorder), and three scales measuring more severe clinical syndromes (thought disorder, major depression, and delusional disorder).

Of particular interest for the purposes of this study was the MCMI-III narcissistic personality disorder scale consisting of 24 items that measure prototypical narcissistic personality disorder traits such as overvaluation of self-worth, the tendency to exploit others and arrogant self-assurance. Although the narcissism scale was of primary interest, the entire MCMI-III was administered for several reasons. First, it was considered important to have a measure of antisocial personality disorder (APD) because of the established relationship to criminal behaviour (APA, 1994). Including a

measure of APD allowed for a better understanding of the relative contribution of narcissism. Second, the validity scales were considered important for evaluating response bias. Finally, the inclusion of other personality scales facilitated various exploratory analyses of other personality traits relevant to aggression and violence.

4.1.2.3 Narcissistic Personality Inventory (NPI). Originally developed by Raskin and Hall (1979), the NPI consists of 40 pairs of statements, with one narcissistic and one non-narcissistic statement per pair. Participants were required to check which of the two statements was "more like them" (forced-choice format). The NPI items were developed to describe the multiple domains of narcissistic personality disorder as defined in the DSM-III. The NPI was not designed as a measure of personality disorder but as a measure of the degree to which individuals differ in the trait of narcissism. Raskin and Hall (1981) report an 8-week alternate form reliability of .72 and found that scores on the NPI were positively related to Eysenck's extraversion and psychoticism scales. The internal consistency of this measure is high (α = .80 to .86 across several studies) and there is support for construct validity (Emmons, 1984, 1987).

4. 1.2.4 Self-Esteem. Both the Culture Free Self-Esteem Inventory-2 (CFSEI-2) and the brief self-rating measure were used as described in the pilot study (See section 3.1.2.2).

4.1.2.5 Self-Esteem Stability. As in the pilot study, the standard deviation of the participants' scores across the seven administrations of the two self-esteem measures provided two measures of self-esteem stability (see sections 3.2.2 and 3.2.3).

4.1.2.6 Behavioural Stress Response Survey (BSRS). The BSRS is a brief self-report measure of the extent to which an individual responds to stress by "acting-

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out" or "acting-in". There are 9 "acting-out" items and 7 "acting-in" items scored on two separate subscales (16 items in total). Participants rated the extent to which they engaged in each item when under stress. They were instructed to consider how they would generally respond when *not* incarcerated (i.e., "when on the street"). Items were rated on a 4-point scale (never, sometimes, frequently, and most of the time). The acting out subscale has a range of 0 to 36, while the acting in subscale has a range of 0 to 28. Research has shown a correlation between the "acting-out" response pattern and Cluster B personality disorders (Parker et al., 2000).   Limited data exist regarding this measure's validity and reliability due to its relatively recent development and limited usage to date.

4.2 Procedure

After volunteering and giving consent to complete the measures, participants were administered the MCMI-III, the NPI, the BSRS, Self-Complexity card sort and the first of the CFSEI-2 and self-ratings. Approximately half of the participants completed all of these measures during the first meeting. Due to time constraints and participant willingness, the remaining participants completed some measures on subsequent days after completing the repeated administrations of the CFSEI-2 and self-ratings. The questionnaires were administered in the order chosen by the participants once the study had been explained to them. This was done in order to facilitate the participants' openness to and enjoyment of the study. Procedures for measuring self-esteem stability were the same as described in the pilot study (section 3.2.2 and 3.2.3); that is, repeated administrations every second day for a two-week period.

All measures were hand-scored and the totals were checked against totals computed by SPSS. The exception was the MCMI-III. This inventory was also hand-scored but could not be checked by computer tally because of unique scoring techniques. Specifically, raw scale scores were calculated following the procedure outlined in the MCMI-III Manual- 2nd Edition (Millon et al., 1997) by adding up the number of responses keyed to each scale with a consideration of the weight assigned to that item. Next, base rate transformations and adjustments were applied. The MCMI-III uses the base rate (BR) score as the standard score into which raw scores are translated. The BR score was designed to anchor cut-off points to the prevalence of a particular attribute in a normative psychiatric population. This allows the personality traits of any individual to be judged against a continuum that differentiates between clinical disorders and normal functioning. A BR score of 0 corresponds to a raw score of 0, BR 60 corresponds to the median raw score and BR 115 corresponds to the maximum attained raw score. BR scores of 75 and 85 are significant. For the personality disorder scales, a BR score of 75 indicates the *presence* of the trait and BR 85 indicates the *presence* of the personality disorder (Millon et al., 1997). Generally, BR scores were used only for descriptive purposes in the present results while raw scores were used in all statistical analyses.

When possible, the participants met with the researcher in an interviewing room on their unit at the RPC. This permitted a degree of privacy as others on the unit (i.e., other patients and staff) could not hear what was said. However, staff and patients generally knew who was involved in the study because they could observe the participant and researcher meeting. Although not ideal, this was required by the

institutional regulations regarding security. When an interview room was not available, the researcher offered to meet with the participant in the "day room" of their unit to complete any of the measures except the card sort. (It was thought that the card-sort measure required a greater degree of privacy given its nature in comparison with questionnaires.) Participants were generally agreeable to this.

4.3 Design and Statistical Analyses

4.3.1 Data Screening

Data accuracy was screened through examination of all variables for values outside of expected ranges; two errors were discovered and corrected. Prior to analysis, the distributions of variables were examined for normality and for outliers. A data point was considered an outlier if it was more than three standard deviations from the mean. See Appendix G for details regarding the screening of the data.

The normality of the distributions for the MCMI-III base rate scores were compared to the distributions using raw scores and it was determined that, overall, the raw data were more normally distributed than the distributions of the base rate scores and consequently, raw scores were used in all analyses.

The distribution of several variables was significantly positively skewed (MCMI-Dysthymia, MCMI-Major Depression, BSRS-Acting out, CFSEI-2 variability, and Self-rating variability) and the distribution of two variables was significantly negatively skewed (MCMI-Desirability and CFSEI-Social Self-esteem). Transformations were applied to achieve normality of distribution. See Table 4.1 for a summary of the transformations applied. All further analyses were performed using the transformed version of the variables unless otherwise stated in the text. Transformed

variables are marked in the text and tables with a superscript TR (e.g., Variability of Self-Rating^{TR}) except transformed variables reflected as part of the transformation were marked with a superscript REF (e.g., Social SE^{REF}).

Table 4.1

Summary of transformations applied to variables

Variable	Transformation	Abbreviation used in tables and text
Y Desirability (raw)	Reflect and SQRT	MCMI-Y^{REF}
D Dysthymia (raw)	SQRT	MCMI-D^{TR}
CC Major Depression (raw)	SQRT	MCMI-MD^{TR}
BSRS Acting-out	SQRT	AO^{TR}
CFSEI-2 Social subscale	Reflect and SQRT	Social SE^{REF}
Variability of CFSEI-2	Log10	vSE^{TR}
Variability of Self-Rating	SQRT	vSR^{TR}

4.3.2 Statistical Analyses

An alpha level of .05 was used for all statistical tests. A series of *t* tests was performed to determine if there were any significant differences in self-esteem, self-esteem stability, self-complexity, or narcissism based on race or offender type. Correlational analyses were performed to test the hypotheses regarding the relationships among self-esteem, self-esteem stability, self-complexity, age, narcissism (and other Cluster B personality traits), and acting-in and acting-out. Using *t* tests, the mean self-complexity of this sample was compared to the mean self-complexity of other samples reported in the literature (including both samples of adults and of children). The general results of the MCMI-III for this sample were described and compared to normative samples. In order to test the hypothesized interactions between self-complexity and

personality in predicting acting-out or acting-in behaviour, a median split was performed

on the independent variables (self-complexity and narcissism) and then a two-way

ANOVA was performed using acting-out as the dependent variable.

4.4 Results

The sample was split according to ethnicity and a series of *t* tests was performed

comparing the scores of the 22 Caucasian participants to the scores of the 19 Aboriginal

participants. The self-rated self-esteem of Caucasian participants was significantly

lower (M = 6.32, SD = 1.38) than the self-rated self-esteem of Aboriginal participants

(M = 7.69, SD = 1.27), t (39) = -3.31, p = .002. There were no other significant

differences on the self-complexity measure, the CFSEI-2, the variability of CFSEI-2, the

variability of self-esteem self-rating, the NPI, the BSRS, or the MCMI-III according to

ethnicity. See Table 4.2 for a summary of the results of these analyses.

Table 4.2

Differences by ethnicity: Caucasian (*n* = 22) versus Aboriginal (*n* = 19)

	Caucasian		Aboriginal		
	M	*SD*	*M*	*SD*	*t*
S.C.	2.26	1.10	2.09	0.93	0.54
CFSEI-2	21.15	6.50	22.46	7.08	-0.66
Self-Rating	6.32	1.38	7.69	1.27	-3.31**
vSE^{TR}	.30	.31	.24	.29	0.61
vSR^{TR}	.81	.48	.72	.53	0.56
NPI[a]	13.86	8.84	13.95	5.37	-0.04
MCMI-Narc	14.23	5.70	15.42	4.60	-0.73
AO^{TR}	3.16	.84	3.37	.83	-0.79
AI	9.27	4.19	9.10	3.44	0.14

[a]Levene's Test for equality of variances significant ($F (1, 39) = 4.12, p > .05$); equal variances not assumed ($df = 35.2$).

^{TR} = transformed

** $p < .01$.

The sample was then split based upon the type of treatment program the participant was enrolled in. The scores of the 24 participants enrolled in violent offender treatment were compared to the scores of the 21 participants enrolled in sexual offender treatment in a series of *t* tests. No significant differences on the key variables were found. See Table 4.3 for a summary of the results of these analyses.

Table 4.3

Differences by offender type: violent (n = 24) versus sexual (n = 21)

	Violent Offenders		Sexual Offenders		t
	M	SD	M	SD	
S.C.	1.99	0.98	2.46	1.01	-1.60
CFSEI-2	22.10	7.39	19.89	7.51	0.99
Self-Rating	7.28	1.30	6.46	1.55	1.91
vSE^{TR}	0.23	0.31	0.32	0.27	-1.05
vSR^{TR}	0.78	0.54	0.80	0.41	-0.12
NPI*	14.54	7.10	13.28	7.17	0.59
MCMI-Narc	15.08	4.84	14.57	5.65	0.33
AO^{TR}	3.27	0.96	3.26	0.80	0.04
AI	8.71	4.06	10.10	3.25	-1.25

^{TR} = transformed

4.4.1 Narcissism and Self-Esteem

Narcissism was measured by the NPI (M = 13.96, SD = 7.08, range = 2 to 32) and the MCMI-Narcissism scale (M = 14.84, SD = 5.18. range = 4 to 24). Although raw scores on the MCMI-III are used in analyses, it is useful to consider the base rate scores for the purposes of description of the sample. Seven participants' BR scores on the MCMI-III-Narcissism scale were over BR 75, indicating the presence of Narcissistic personality traits and of those seven, three participants scored greater than BR 85, suggesting the presence of Narcissistic Personality Disorder. The MCMI-Narcissism scale and the NPI were positively correlated (r = .54. p < .001).

Self-esteem was measured using the CFSEI-2 and a brief self-rating scale of one to ten. The mean self-rating ($M = 6.90$. $SD = 1.46$) was significantly correlated with the mean total score on the CFSEI-2 ($M = 21.07$, $SD = 7.45$), ($r = .65$, $p < .001$). The self-rating was also strongly correlated with the three subtests of the CFSEI-2. See Table 4.4 for a summary of these analyses.

Table 4.4

Correlations of CFSEI-2 subscales with self-rating of self-esteem (N = 45)

	M	*SD*	Correlation with Self-Rating
General SE	10.73	3.70	.67**
Personal SE	4.78	2.68	.45**
Social SE[REF]	1.75	.48	-.63**

[REF] = reflected (transformed)

** *p* < .001.

The subscale inter-correlations on the CFSEI-2 were generally similar to those found in the normative sample of university students reported by Battle (1992). Scores on the Social subscale and the Personal subscale, however, correlated more strongly to all other scores than expected based on the normative sample. See Table 4.5 for the subscale inter-correlations in the current study and those reported by Battle (1992).

It was predicted that participants reporting more narcissistic personality traits would also report higher self-esteem. This hypothesis was partially supported. Table 4.6 shows the correlations between the self-esteem measures and the narcissism measures. Narcissism as measured by the MCMI-III was significantly correlated with

the mean CFSEI-2 Total score ($r = .39$, $p = .01$) and with the Personal and General

subscales of the CFSEI-2. It was not correlated with the mean self-rating of self-esteem

($r = .22$, $p = .15$). The NPI, on the other hand, was not correlated with either the mean

CFSEI-2 Total score ($r = .22$, $p = .14$), or with the mean self-rating of self-esteem ($r =$

$.09$. $p = .56$). The only measure of self-esteem that correlated with the NPI was the

Social subscale of the CFSEI-2 ($r = .34$, $p = .02$).

Table 4.5

CFSEI-2 subscale inter-correlations

	CFSEI-2			
	Total	General SE	Social SE[REF]	Personal SE
CFSEI-2				
Total		.96**	-.88**	.86**
General SE	.91**		-.84**	.71**
Social SE[REF]	.54**	.49**		-.59**
Personal SE	.77**	.53**	.14	

Note. Current sample (N = 45) in top triangle, normative sample (N = 585) in lower triangle (Battle, 1992).
[REF] = reflected (transformed), direction of interpretation reversed.
** $p < .01$.

Table 4.6

Correlations of narcissism and self-esteem (N = 45)

	NPI	CFSEI-2				Self-
		Total	General SE	Personal SE	Social SE[REF]	Rating
MCMI-Narc	.54**	.39**	.37*	.37*	-.28	.22
NPI		.22	.25	.04	-.34*	.09

[REF] = reflected (transformed)
* $p < .05$; ** $p < .01$.

4.4.2 Narcissism and Self-Esteem Stability

Self-esteem stability was operationalized as the standard deviation of the participant's seven administrations of the CFSEI-2. The mean self-esteem stability score was 2.34 points on the CFSEI-2 and 0.85 points on the self-rating scale. This suggests that, in general, participants did not change their responses to the questionnaire or their self-rating much over the two-week period but that there was some degree of variability. See Table 4.7 for the frequencies of change scores. It was found that while the range of standard deviations on the self-rating scale was 0.0 to 3.65, only three participants scored over 2.0 and nine participants (20%) had a standard deviation of 0.0 on this measure. The range of standard deviations on the CFSEI-2 was 0.49 to 9.53, with three participants scoring over 5.0 and eight participants with a standard deviation under 1.0.

Table 4.7

Frequencies of self-esteem stability scores (N = 45)

Variability of CFSEI-2	n	%	Variability of Self-Rating	n	%
0.00 – 0.99	8	18	0.00 – 0.99	30	67
1.00 – 1.99	19	42	1.00 – 1.99	12	27
2.00 – 2.99	6	13	2.00 – 2.99	2	4
3.00 – 3.99	5	11	3.00 – 3.99	1	2
4.00 – 4.99	4	9			
5.00 – 5.99	1	2			
6.00 – 9.53	2	4			

The two measures of self-esteem stability (vSE^{TR} and vSR^{TR}) were significantly positively correlated ($r = .53$, $p < .01$). The standard deviations of the various subscales within the CFSEI-2 were also significantly correlated with each other and with the standard deviation of the self-rating scale except for the Personal subscale. See Table 4.8 for a summary of these correlations.

Table 4.8

Intercorrelations of self-esteem stability measures (N = 45)

	Variability of CFSEI-2			vSR^{TR}
	Social	Personal	General	
Variability of CFSEI-2				
Total^{TR}	.73**	.81**	.89**	.53**
Social		.56**	.59**	.40**
Personal			.66**	.18
General				.34*

^{TR} = transformed

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

It was predicted that those reporting more Narcissistic personality traits would display less stability in their self-esteem over the two weeks of data collection. This hypothesis was not supported. The correlations between the measures of narcissism and the measures of self-esteem stability were all non-significant and were generally in the opposite direction than predicted. See Table 4.9 for a summary of these correlations.

Table 4.9

Correlations between narcissism and self-esteem stability (N = 45)

	Narcissism	
	MCMI-Narc	NPI
Variability of CFSEI-2		
Total^{TR}	-.09	-.17
Social	.04	-.10
Personal	-.01	-.12
General	-.02	-.06
Variability of Self-Rating^{TR}	-.08	.09

^{TR} = transformed

4.4.3 Narcissism and Self-Complexity

It was expected that Narcissism would be negatively correlated with self-complexity scores ($M = 2.21$, $SD = 1.01$, range = 0.53 to 4.78). This hypothesis was not supported. Narcissism as measured by the NPI was associated with higher self-complexity ($r = .34$, $p = .02$) and narcissism as measured by the MCMI-III was unrelated to self-complexity ($r = .23$, $p = .14$).

4.4.4 Self-Complexity and Self-Esteem

It was expected that self-complexity would be unrelated to (not correlated with) measures of self-esteem. This hypothesis was supported. See Table 4.10 for the correlations of self-complexity with the measures of self-esteem including the subtests of the CFSEI-2.

4.4.5 Self-Complexity and Self-Esteem Stability

It was expected that self-complexity would be negatively correlated with measures of self-esteem stability such that those with higher self-complexity would report more stable self-esteem (i.e., smaller standard deviations). This hypothesis was not supported as self-complexity was not significantly correlated with the standard deviation of the self-rating^{TR} ($r = -.04$, $p = .81$), the standard deviation of the CFSEI-2 total score ($r = -.12$, $p = .42$), or any of the CFSEI-2 subscales. See Table 4.10.

Table 4.10

Correlations of self-esteem and self-esteem stability with self-complexity (N = 45)

	Self-Complexity		Self-Complexity
SELF-ESTEEM		SELF-ESTEEM STABILITY	
CFSEI-2		Variability of CFSEI-2	
Total	-.02	Total^{TR}	-.09
Social^{REF}	-.07	Social	-.002
Personal	-.06	Personal	-.09
General	-.002	General	-.17
Self-Rating	-.06	Variability of Self-Rating^{TR}	-.04

^{TR} = transformed

4.4.6 Self-Complexity: Offenders versus other samples

It was expected that the self-complexity of the current sample of offenders would be lower than the self-complexity reported in research using samples of university

students. The mean self-complexity score of this sample of male offenders ($M = 2.21$, $SD = 1.01$) was significantly lower than the mean self-complexity score reported by Linville (1987) in her sample of 106 female and male undergraduates ($M = 3.09$, $SD = 0.69$); $t (149) = 5.38$, $p < .05$, two-tailed. In comparison to average self-complexity scores reported in other studies, the offenders' scores in this sample were lower except when compared to children. See Table 4.11. This is particularly interesting in consideration of results reported by Woolfolk, et al. (1995). In that study, it was found that when a word list with a high percentage of positive descriptors was used in Linville's self-complexity task, participants tend to report higher self-complexity than when the list has a balanced number of positive and negative words or a higher number of negative words.

4.4.7 Self-Complexity and Age

It is generally thought that self-complexity increases with age particularly throughout later childhood and adolescence. In this sample, age ($M = 32.0$, $SD = 8.60$) and self-complexity, however, were not correlated ($r = .08$, $p = .61$).

Table 4.11

Mean self-complexity scores: Current sample versus others

Source	Sample	Gender	M	SD
Abela & Veronneau-McArdle (2002)	3rd Graders	Males	1.34	0.82
		Females	1.81	0.81
	7th Graders	Males	1.72	0.60
		Females	2.03	0.65
Current Study	**Offenders**	**Male**	**2.21**	**1.01**
Jordon & Cole (1996)	Children (Grades 4, 6, and 8)	Mixed	2.54	0.64
Selby & Mahoney (2002)	Undergraduates	Mixed	2.57	0.65
Rafaeli-Mor et al. (1999)	Undergraduates	Females	2.80	0.58
Linville (1985)	Clinical	Female	2.86	0.75
Linville (1987)	Undergraduates	Mixed	3.09	0.69
Morgan & Janoff-Bulman (1994)	Undergraduates	Mixed	3.13	-[a]
Woolfolk et al. (1995)	Undergraduates	Mixed	3.19	0.96
Kalthoff & Neimeyer (1993)	Undergraduates	Mixed	3.26	0.70
Smith & Cohen (1993)	Undergraduates	Male	3.27	0.66

[a] standard deviation not provided; range: .42 - 6.19.

4.4.8 Cluster B Personality Traits

4.4.8.1 Cluster B traits and self-complexity. The interscale correlations of the Cluster B personality scales on the MCMI-III were compared with the interscale correlations reported in the MCMI-III normative sample of 1,078 clinical male and

female participants from the United States and Canada (Millon et al., 1997) and showed a similar although not identical pattern of intercorrelations (Table 4.12). As would be expected, the mean score on the Antisocial Personality scale of the MCMI-III in this sample was nearly at the BR cut off of 75 (indicating the presence of antisocial traits), ($M = 74.1$. $SD = 18.3$). Of the 45 participants, 27 (60%) scored above this BR cut off score; 10 (22%) were above the cut off on the Borderline scale; 10 (22%) on the Narcissistic scale; 9 (20%) on the Aggressive/Sadistic scale; and none on the Histrionic scale.

Table 4.12

Interscale correlations of the MCMI-III Cluster B personality scales (N = 45)

	Narcissistic	APD	Agg/Sad	BPD	Histrionic
Narcissistic		.42**	.29	-.18	.57**
		.45**	.35*	-.04	.54**
APD	NS		.80**	.31*	.18
			.85**	.53**	.06
Agg/Sad	NS	.65**		.41**	-.15
				.67**	-.19
BPD	-.38**	.61**	.57**		.47**
					.49**
Histrionic	.70**	-.25**	-.23**	-.55**	

Note. Correlations for current sample are reported in upper triangle (BR in top row, raw scores in bottom row); normative sample reported in lower triangle (BR; N = 600) (Millon, Davis & Millon, 1997).
* $p < .05$; ** $p < .01$.

It was expected that self-complexity would correlate negatively with Cluster B personality traits (narcissism, borderline, antisocial and histrionic traits) as measured by the MCMI-III. Because the relationship between self-complexity and narcissism was described in Section 4.5.3, it will not be repeated here. This hypothesis was not supported (Table 4.13). There was a significant positive correlation between self-complexity and antisocial personality ($r = .31$, $p = .04$) and no other significant correlations.

Table 4.13

MCMI-III subscale (raw scores) correlations with self-complexity (N = 45)

	Self-Complexity
Histrionic	.12
Borderline	.20
Narcissistic	.23
Antisocial	.31*
Aggressive/Sadistic	.25

* $p < .05$.

4.4.8.2 Cluster B traits, self-esteem and self-esteem stability. With the exception of the expected relationship between self-esteem and narcissism, no direct association was predicted between the remaining Cluster B personality traits and self-esteem. Antisocial personality traits were not significantly associated with self-esteem. Histrionic personality traits were consistently associated with higher self-esteem while Borderline personality traits were consistently associated with lower self-esteem. Aggressive/sadistic personality also showed an association with lower self-esteem but only as measured by the CFSEI-2 and the association was somewhat weaker than seen with Borderline personality traits. See Table 4.14 for a summary of these correlations.

It was expected that the Cluster B personality traits would be correlated with self-esteem instability such that increasing levels of Cluster B personality traits would be associated with less stable self-esteem. Only the MCMI-III Borderline personality scale correlated with self-esteem stability measures as predicted. Increasing borderline personality traits were associated with more instability in the self-ratings of self-esteem and also with instability of the CFSEI-2 total score. More instability in social self-esteem was associated with both increasing borderline personality traits and with increasing aggressive/sadistic personality traits. Increasing scores on the Histrionic personality scale, on the other hand were associated with more stable self-esteem as measured by the variability of the CFSEI-2 total score. See Table 4.14 for a summary of these correlations.

4.4.9 BSRS Correlations with Other Key Variables

As expected, the acting-out subscale ($M = 11.4$, $SD = 6.09$) and the acting-in subscale ($M = 9.36$, $SD = 3.73$) of the BSRS were not correlated ($r = .05$, $p = .76$). Neither the acting-out subscale nor the acting-in subscale was correlated with age or self-complexity. These subscales showed different patterns of correlations with the remaining personality variables but similar patterns with the self-esteem variables. Table 4.15 lists the correlations between the two BSRS scales and the other major variables.

Table 4.14

Correlations of Cluster B scales with self-esteem and self-esteem stability (N = 45)

	MCMI-III CLUSTER B SCALES				
	Narc.	APD	Agg / Sad	BPD	Histrion.
SELF-ESTEEM					
CFSEI-2					
Total	.39**	-.20	-.38*	-.65**	.61**
Social[REF]	-.28	.12	.32*	.47**	-.55**
Personal	.37*	-.20	-.35*	-.77	.53**
General	.37*	-.20	-.36**	-.52**	.57**
Self-Rating	.22	-.06	-.20	-.43**	.51**
SELF-ESTEEM VARIABILITY					
CFSEI-2					
Total[TR]	-.09	-.01	.11	.39**	-.36*
Social	.04	.08	.30*	.41**	-.24
Personal	-.01	.04	.06	.05	-.11
General	-.02	-.05	.02	-.02	-.28
Self-Rating[TR]	-.08	.16	.29	.46**	-.17

REF = reflected (transformed); TR = transformed

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

Table 4.15

Correlations of BSRS subscales with other variables (N = 45)

	BSRS	
	Acting-out[TR]	Acting-in
BRSR: Acting-in	.05	--
Age	.10	.09
Self-Complexity	.15	-.15
NPI	.22	-.36*
MCMI-III		
Narcissism	-.01	-.43**
Histrionic	-.22	-.44**
Borderline	.40**	.20
Antisocial	.35*	-.34*
Aggressive / Sadistic	.45**	-.17
Self-Esteem		
Self-Rated	-.29	-.36*
CFSEI-2		
Total	-.45**	-.31*
Social[REF]	.38**	.34*
Personal	-.33*	-.25
General	-.48**	-.27
Self-Esteem Stability		
Self-Rated[TR]	.25	.22
CFSEI-2 Total[TR]	.34*	.22

[REF] = reflected (transformed); [TR] = transformed

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

With regard to personality variables, acting-out scores were positively correlated with the MCMI-III Borderline scale ($r = .40, p = .01$), the MCMI-III Antisocial scale ($r = .35, p = .02$) and the MCMI-III Aggressive/Sadistic scale ($r = .45, p = .002$). Acting-

in scores, on the other hand, were negatively correlated with the NPI ($r = -.36, p = .015$), MCMI-III Narcissism scale ($r = -.43, p = .003$), MCMI-III Histrionic scale ($r = -.44, p = .002$) and the MCMI-III Antisocial scale ($r = -.34, p = .02$).

With regard to self-esteem and self-esteem stability variables, the Acting-out scale was negatively correlated with self-esteem as measured by the CFSEI-2 Total score ($r = -.46, p = .001$) and all subscales. It was also negatively (but not significantly) correlated with the self-rated self-esteem ($r = -.29, p = .06$). Generally, lower self-esteem correlated with more self-reported acting-out. A similar pattern was found for the correlation of the Acting-in subscale with self-esteem. Increased instability of self-esteem (as measured by the CFSEI-2 but not the self-rating) was related to increased acting-out but not acting-in.

4.4.10 Interaction: Self-Complexity and Personality Predicting Acting-out and Acting-in

It was expected that self-complexity and personality would interact such that low levels of self-complexity and high levels of Cluster B personality traits (particularly narcissism) would result in higher levels of acting out than the presence of low self-complexity or high narcissism alone. It was also predicted that self-complexity and depressive personality traits would interact such that low self-complexity and high levels of depression would predict an "acting-in" response to stress (as measured by the BSRS).

4.4.10.1 ANOVA: Self-complexity and NPI. In order to test the hypothesized interaction, median splits were obtained on the self-complexity variable and the NPI variable to create the dichotomous variables, low ($n = 23$) and high ($n = 22$) self-

complexity and low ($n = 23$) and high ($n = 22$) NPI. A two-way ANOVA was performed using these variables with BSRS: Acting-out as the dependent variable.

Analysis was performed using SPSS FREQUENCIES for evaluation of assumptions. No outliers were identified. Levene's Test for equality of error variances was non-significant, $F(3, 41) = 1.86$, $p = .15$ in spite of significant deviation from normal distribution in BSRS-Acting out. Consequently this analysis was performed using both the transformed and the non-transformed dependent variable. Because the results using the transformed variable were not significantly different from the results using the non-transformed variable, only the latter is reported here. See Appendix G for parallel results using the transformed variable, BSRS: Acting-out^{TR}.

There was no significant main effect for self-complexity. Participants with low self-complexity did not report significantly more acting-out ($M = 10.87$) than did participants with high self-complexity ($M = 12.00$), $F(1, 41) = 0.11$, $p = .74$. There was also no main effect for narcissism as measured by the NPI. Participants with low narcissism scores did not report significantly less acting-out ($M = 10.36$) than participants with high narcissism scores ($M = 12.77$), $F(1, 41) = 1.66$, $p = .20$. There was no significant self-complexity-by-NPI interaction, $F(1, 41) = 0.34$, $p = .56$. Although the interaction was not significant, the highest level of acting-out was seen in the high NPI, low self-complexity cell ($M = 13.00$) as predicted.

4.4.10.2 ANOVA: Self-complexity and MCMI-III narcissism. A median split was again obtained to create the dichotomous variables, low and high self-complexity and low ($n = 23$) and high MCMI-III Narcissism ($n = 22$). A two-way ANOVA was performed, again using BSRS: Acting-out as the dependent variable. Parallel analyses

using the transformed acting-out variable, BSRS: Acting-out^{TR} are presented in Appendix H and are not significantly different from the results presented here. Levene's test for equality of error variances was not significant, $F(3, 41) = 0.51$, $p = .68$. There was no main effect for self-complexity. The low self-complexity group did not report significantly more acting-out ($M = 10.87$) than the high self-complexity group ($M = 12.00$), but rather, reported (nonsignificantly) less acting-out, $F(1, 41) = .53$, $p = .47$. There was also no significant main effect for narcissism as measured by the MCMI-III. The low narcissism group did not report significantly less acting-out ($M = 12.45$) than the high narcissism group ($M = 10.40$), but rather, reported (nonsignificantly) more, $F(1, 41) = 1.21$, $p = .28$. There was again no significant self-complexity by MCMI-Narcissism interaction, $F(1, 41) = 0.01$, $p = .93$. In this case, the highest level of acting-out was seen in the high self-complexity, low narcissism group ($M = 13.20$).

4.4.10.3 ANOVA: Self-complexity and the other Cluster B personality scales. A median split was obtained on the remaining Cluster B personality scales (Histrionic, Borderline, and Antisocial) and on the Aggressive/Sadistic scale of the MCMI-III. Four separate two-way ANOVAs were then performed to test for significant interactions between self-complexity and each of these personality variables in predicting self-reported acting-out. Table 4.16 presents a summary of these analyses. A table of parallel analyses using the transformed variable, BSRS: Acting-out^{TR} can be found in Appendix I. Results were not significantly different from those reported here. Levene's test for equality of error variances was not significant in all cases. There was a main effect for Aggressive/Sadistic personality. The high Aggressive/Sadistic group reported significantly more acting-out ($M = 13.04$), than did the low Aggressive/Sadistic

group ($M = 9.40$), $F(1, 41) = 4.77$, $p = .04$. Given the nature of the Aggressive/Sadistic personality, this was not unexpected. There were no other significant main effects. There were no significant self-complexity by Cluster B personality interactions; however, the self-complexity by Antisocial personality interaction approached significance, $F(1,41) = 3.92$, $p = .054$. The highest acting-out scores were found in the high antisocial personality and high self-complexity cell ($M = 14.53$) rather than the high antisocial, low self-complexity cell ($M = 10.18$) as predicted.

Table 4.16

ANOVA: Self-Complexity and Cluster B predicting acting-out (N = 45)

	Main Effect	Interaction
	(*F*)	(*F*)
Histrionic	0.39	0.33
Borderline	2.19	0.69
Antisocial	1.52	3.92
Aggressive/Sadistic	4.77*	2.82

* $p < .05$.

4.4.10.4 ANOVA: Self-complexity and depression predicting acting-in. Prior to testing for an interaction between self-complexity and depression, the relationships among these variables were examined. There was no direct association between self-complexity and BSRS: Acting-in and any of the three measures of depression (all of which were highly inter-correlated). See Table 4.17 for a summary of the correlations.

Table 4.17

Correlation matrix of acting-in, depression scales and self-complexity (N = 45)

	Self-Complexity	Depressive Personality	Dysthymia^{TR}	Major Depression^{TR}
Acting-in	-0.15	0.24	0.28	0.28
Self-Complexity		0.10	0.10	0.19
Depressive Personality			0.84**	0.78**
Dysthymia^{TR}				0.77**

^{TR} = transformed
** $p < .01$.

A median split was obtained on the three MCMI-III scales that reflect symptoms of depression or depressive personality traits (Scale 2B: Depressive personality; Scale D: Dysthymia and Scale CC: Major Depression) and three separate two-way ANOVAs were performed to examine the degree to which self-complexity and measures of depression interact to predict an "acting-in" response style. See Table 4.18 for a summary of these analyses. Because the MCMI-III Scale D: Dysthymia and Scale CC: Major Depression were significantly positively skewed, a square root transformation was applied and the ANOVAs were performed using the transformed variables. Use of the transformed version of the variable made no difference to the results and consequently, the untransformed variables were used and reported here. Levene's test for equality of error variances was non-significant in all analyses. Across all analyses, there was a main effect for self-complexity with the high self-complexity group reporting higher levels of acting-in (M = 8.18) than the low self-complexity group (M =

10.48). There also emerged a pattern in which the highest levels of acting-in were found

in the low self-complexity/high depression cells and the lowest levels of acting-in were

found in the high self-complexity/low depression cells, as predicted. However, none of

the interactions were significant.

Table 4.18

ANOVA: Self-Complexity and depression predicting acting-in (N = 45)

	Main Effect (F)	Interaction (F)	Highest cell	Lowest cell
Depressive Personality (DP)		1.26	Low SC /	High SC /
Self-Complexity	5.07*		High DP	Low DP
DP Main effect	1.57		M = 10.54	M = 6.80
Dysthymia		0.001	Low SC /	High SC /
Self-Complexity	4.20*		High Dys	Low Dys
Dysthymia	2.22		M = 11.15	M = 7.36
Major Depression (MD)		0.30	Low SC /	High SC /
Self-Complexity	4.38*		High MD	Low MD
MD	2.82		M = 11.00	M = 7.36

* $p < .05$.

4.5 Discussion

Generally, the hypotheses of this study were not supported by the results, both

with regard to the replication of findings from previous research and with regard to the

previously untested hypotheses. Interesting, though unexpected, relationships among

the constructs of narcissism, self-esteem, self-esteem stability, self-complexity and

acting-out emerged. The following discussion will begin with a review of the methods

used to measure each construct and then proceed to outline the major findings. Given the unexpected nature of the results, a discussion of the limitations of the current study will be integrated with the discussion of the main findings.

4.5.1 Measurement of the Constructs

Three of the major constructs in this study (narcissism, self-esteem and self-esteem stability) were assessed using more than one measurement technique. There were two measures of narcissism, the NPI and the MCMI-III. The first (NPI) was designed to measure non-pathological narcissism in the general population while the second (MCMI-III) was designed to measure pathological narcissism in clinical populations. There were also two measures of self-esteem, the CFSEI-2 and a single item self-rating. The CFSEI-2 is a more comprehensive measure than the self-rating and includes several subscales (Social Self-Esteem, Personal Self-Esteem and General Self-Esteem). The self-rating, however, requires less administration time and may be more feasible given the repeated administration methodology. The two measures of self-esteem stability were derived directly from the two measures of self-esteem (i.e., the standard deviation of the CFSEI-2 scores and the standard deviation of the self-rating scores across the seven administrations).

4.5.2 Summary of the Main Findings

4.5.2.1 Narcissism, self-esteem and self-esteem stability. It was expected that narcissists would report high but unstable self-esteem because of the theoretical vulnerability of the narcissist's ego to insult. There were two measures of narcissism and two measures of self-esteem (and self-esteem stability). No consistent pattern of

relationships among the constructs emerged across the multiple measures. Higher levels of narcissism (on both the NPI and the MCMI-III) were associated with more positive self-evaluations of peer relationships (i.e., higher social self-esteem). The measure of more pathological narcissism (i.e., as measured by the MCMI-III) was associated with both higher self-ratings of self-esteem and higher self-esteem as measured by the CFSEI-2, while the less pathological narcissism measure was not. There was no association between narcissism and stability of self-esteem. There are several possible explanations for this pattern of results, particularly if the context of the data collection is considered.

It is possible that the ongoing institutionalization of the participants provided a level of stability in their day-to-day lives that would not be present if they were living independently. The stability of incarceration, while unpleasant, may act as a protective factor for individuals who would otherwise react with emotional extremes and fluctuations of self-esteem. Alternatively, it is possible that the two week period of data collection was insufficient to accurately reflect changes in self-esteem in response to stressful life events and that the institutional environment can, in fact, be quite volatile and unstable.

Neither measure of narcissism was correlated with the self-rating measure of self-esteem and only the MCMI-III Narcissism scale was correlated with the total CFSEI-2 score. The association of more pathological narcissism but not less pathological narcissism with higher overall self-esteem might suggest high global self-esteem within a prison environment may be more "pathological". Of the sub-scales on the CFSEI-2, only the social self-esteem scale was associated with both measures of

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narcissism. This may indicate that narcissistic individuals, while incarcerated, believe that they are liked and respected by others in their environment. On the other hand, the relationship between these two constructs may have resulted from similarity in item content across the narcissism and social self-esteem scales. For example, both scales contain items referring to making or having friend and referring to how well liked the individual considers himself.

The two measures of self-esteem (self-rating and CFSEI-2 Total score) were correlated with each other as would be expected given that they were intended to measure the same construct.

4.5.2.2 Self-complexity. There was a failure to demonstrate the expected relationship between self-complexity and affective extremity. In the current study, affective extremity was not measured directly; rather, self-esteem stability and acting-out were used as proxies for the affect construct. No direct relationship (i.e., correlation) was found between self-complexity and self-esteem stability, acting-out or acting-in. The chance of demonstrating the role of self-complexity in one's affective response to failure or ego threat may have been lowered by using these proxy measures rather than a direct measure of affect.

Additionally, self-complexity and narcissistic personality traits are theoretically expected to impact the stability of self-esteem in conjunction with experiences of failure or threats to the ego. In the current study, there was no attempt to experimentally introduce such events as it was expected that over the two-week data collection period they would occur naturally in the course of day-to-day life. However, no attempt was made to determine if this was the case and consequently, it is possible that participants

generally did not have experiences of ego threats or failure during the study. This could also provide some explanation as to why the expected relationship between higher self-complexity and more stable self-esteem was not seen. As noted above, this may also be indicative of problems with the self-esteem stability methodology in the current context (i.e., incarceration may provide an artificial level of stability for the participants or the duration of data collection may have been too short).

4.5.2.3 Acting-out and acting-in. In this sample, acting-out was associated with lower evaluations of overall self-worth. This is consistent with the theory that individuals who evaluate their self-worth poorly are more likely to act out their anger in aggressive ways. Acting-out was also associated with self-esteem instability but only as measured by the CFSEI-2. This lends partial support to the theory that it is those who experience changes, particularly drops in their self-evaluation, who are most prone to experience anger and aggression and to act-out those feelings.

However, because of the correlational design of this study, other interpretations cannot be ruled out. For example, the relationship between acting-out and self-esteem instability could also indicate that the physical expression of anger or frustration (i.e., acting-out) results in a temporary drop in self-esteem for individuals engaged in a treatment program such as the program at the RPC. Additionally, the association between lower self-esteem and acting-out may reflect a response bias such that it is those individuals who are willing to admit to critical self-thoughts who will also admit to aggressive behaviour. The impact of response bias, particularly socially desirable responding, is explored in post-hoc analyses in Appendix K.

No support was found for the predicted interaction between self-complexity and narcissism in predicting acting-out behaviour. However, when the NPI was used as the measure of narcissism, there was a trend in the expected direction with the highest levels of acting-out reported by the high narcissism, low self-complexity group. It is possible that because of the small size of the current sample, there was insufficient power to detect the interaction.

Prior research has shown that self-complexity can act as a buffer with regard to the development of symptoms of depression in reaction to stress. In this study, there was no direct association between self-complexity and acting-in, nor was there a direct association between the measures of depression and acting-in. The examination of the interaction of self-complexity and depression in predicting acting-in revealed no significant interaction effect. However, there was a trend such that the lowest levels of acting-in were found in the high self-complexity, low depression groups.

4.5.2.4 Personality. The use of MCMI-III in its entirety permitted some exploratory analyses regarding various personality traits other than narcissism, particularly the other Cluster B personality traits of Antisocial, Borderline and Histrionic personalities. Antisocial personality traits were associated with higher self-complexity, more acting-out and less acting-in and were not associated with either self-esteem or self-esteem stability. While it is not surprising that antisocial personality traits would be associated with an "acting-out" and not an "acting-in" response to stress, the association with higher self-complexity is unexpected and requires further investigation to explain.

Borderline personality traits were associated with lower self-esteem ratings, more instability in self-esteem and an "acting-out" response to stress. Among the

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subscales of the CFSEI-2, Social self-esteem showed the strongest negative correlation with the MCMI-Borderline personality scale. These results are consistent with expectations of a borderline personality. Future research could follow up on these findings and investigate whether the lower social self-esteem is related to the occurrence of "unstable and intense interpersonal relationships" that is diagnostic of Borderline Personality Disorder (DSM-IV: APA, 1994, p. 710).

Because of its similarity to antisocial personality and the relevance of the personality construct to the topic under investigation (violence and aggression), the relationship of the Aggressive/Sadistic scale to the other major variables was also examined. It was found that this personality type was associated with more acting-out. This is generally consistent with the description of the aggressive/sadistic individual. Higher scores on this scale were also associated with lower self-esteem and more unstable self-esteem specific to interpersonal relationships. While one possible interpretation is that individuals with an aggressive/sadistic personality style experience frequent interpersonal conflict, this may also be reflective of a specific response style in which those who are willing to admit to aggressive traits are also willing to admit to acting-out behaviour. The impact of socially desirable responding on these correlations is explored in Appendix K.

4.5.3 Limitations

There are a number of possible explanations for the present failure to demonstrate the predicted interaction between narcissism and self-complexity in predicting acting-out behaviour. It is possible that, due to a small sample size, there was not enough statistical power to detect the interaction. Alternatively, the cross-sectional

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(i.e., correlational) design of the present study may have been inappropriate for testing the theoretical "stress-buffering" effect of high self-complexity. This effect, as reported by Linville (1985; 1987) and others (e.g., Campbell et al., 1990; Dixon & Baumeister, 1991), is generally detected only in research designs in which participants experience or are exposed to an identified stressor. Since no attempt was made to determine if participants experienced an identifiable stressor during the course of the study, it is not possible to determine if this condition was met in the current design. Additionally, the dependent variable generally used in past research to demonstrate the buffering effect was *affect* rather than *behaviour* as was done in the current study.

Other, more general limitations to this study include the use of self-report measures only, and the failure to account for the impact of treatment on the responses of the participants. The use of only self-report measures introduces the possibility that the observed pattern of results was due to the effects of response bias. All participants were engaged in treatment at the Regional Psychiatric Center. No attempt was made to control for the effect of treatment in this study and so the impact of treatment on self-report responses is also not known.

CHAPTER 5
STUDY 2

This second study was designed to expand and elaborate the design of Study 1 in a number of ways. First, although the sample was again of federally incarcerated male offenders, the sample was drawn from a federal penitentiary (Saskatchewan Penitentiary, Prince Albert) rather than a forensic psychiatric hospital (Regional Psychiatric Center, Saskatoon) as in Study 1. This change was introduced to help eliminate the potential confound introduced by the participants' engagement in a treatment program.

Second, in order to properly assess the theoretical function of self-complexity as a buffer for affective reactions, participants' experiences of stressful events were tracked over the course of data collection and affective reactions were assessed following these events. The duration of data collection was expanded from two weeks to six weeks. The repeated measurement of events and affective reactions allowed a more specific analysis of whether individuals who are low in self-complexity experienced more extreme affective reactions to daily events. Also, a version of the self-complexity measure that allowed separate consideration of positive and negative self-complexity was used (see Appendix M for a description of the alteration of the word list). This allowed for the exploration of differential effects of positive versus negative self-complexity.

Third, the measure of the dependent variable (acting-out) used in Study 1 was quite limited. In the present study, acting-out was again assessed using the Behavioural Stress Response Survey (BSRS) but further measures were added. Acting-out was also assessed through self-report and official records of violent behaviour, reflecting

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behaviour both while in the community and while incarcerated. Also, measures of anger and aggression were included.

Fourth, the present study included a measure that directly assessed socially desirable responding, making assessing and controlling for response bias more straightforward. The use of official records and collateral reports of violent behaviour and reactivity also helped eliminate biases introduced by the use of only self-report measures.

The main hypotheses for this second study may be stated as follows. First, as in Study 1, it was expected that narcissism (as measured by both the NPI and the MCMI-III would correlate positively with self-esteem and negatively with self-esteem stability. Second, in a replication of Witte et al., (2002), it was expected that the Entitlement/ Exploitativeness (E/E) subscale of the NPI would correlate positively with anger as measured by the Buss-Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992) and the State-Trait Anger Inventory (STAXI-2; Speilberger, 1996). Third, it was expected that there would be no direct relationship between self-esteem and acting-out or violent behaviour. Although a relationship was found between self-esteem and acting-out in Study 1, further exploration of this hypothesis was undertaken in the second study because of the somewhat different population under investigation and the addition of acting-out measures that were not self-report (i.e., official records of violent behaviour). Fourth, in a test of the "buffering effect" (Linville, 1985; 1987), it was expected that self-complexity would mediate the impact of evaluative events on affect. More specifically, it was expected that following a positive evaluative experience, participants low in self-complexity would report greater gains in self-esteem (as

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measured by the CFSEI-II) and more extreme positive affect [as measured by the Positive and Negative Affect Schedule (PANAS; Watson, Clark & Tellegen, 2000) and the STAXI-2] than participants higher in self-complexity. Conversely, it was expected that following a negative evaluative event, participants low in self-complexity would report greater losses in self-esteem and more extreme negative affect than participants higher in self-complexity. Additionally, exploratory analyses were conducted (and reported in Appendix U) to determine whether positive and negative self-complexity had differential effects with regard to the mediation of the impact of evaluative events. Finally, as in Study 1, it was expected that the presence of narcissistic traits and low self-complexity would predict violent behaviour (as measured by the BSRS: Acting-out, the self-report of violent behaviour and the criminal history).

5.1 Method

5.1.1 Sample

Participants for the second study were inmates currently incarcerated at Saskatchewan Penitentiary in a medium-security unit or at Riverbend Institution, the minimum-security institution adjacent to Saskatchewan Penitentiary. Consultation with staff at the penitentiary led to the decision not to include offenders from the maximum-security unit due to the impact on routine and staffing that multiple visits to each participant would require. In order to be eligible to volunteer for the study, the offenders needed to be serving a term of incarceration that would not end prior to the end of the data collection period (approximately six weeks from the first interview). There were no selection criteria based on offense history because it was believed that all incarcerated individuals would have some history of 'acting-out' behaviour.

5.1.1.1 Recruitment. Participants were recruited through various means. First, all parole officers working within the institution were contacted in person. The researcher described the study and minimum requirements for participants and asked the parole officers to forward names of individuals they believed would be suitable. The parole officers were asked to consider mainly whether the individual would have time in his schedule to participate and whether the individual was expected to be in residence at the institution for at least eight weeks from the time of contact. The researcher then contacted the individuals recommended by the parole officers, assessed their suitability, described the participation requirements, and offered them the chance to volunteer.

Second, the researcher attended a session of all treatment groups and educational programs currently running at the institutions to offer individuals the chance to volunteer. Third, individuals volunteered after hearing about the study from other inmates, through an informal "word-of-mouth" process. Finally, several inmate representatives offered to collect names from interested individuals on their various units who may not have heard about the study in other ways. These individuals were also contacted and offered the chance to volunteer.

Collecting names from the parole officers may have initially introduced a selection bias given that the parole officers were more likely to recommend individuals they deemed appropriate either because they deemed the individuals to be more likely to participate or they deemed them "interesting" for idiosyncratic reasons. However, there was sufficient opportunity for inmates not specifically referred by their parole officers to volunteer, to counteract this potential bias.

5.1.1.2 Final sample characteristics. A total of 128 inmates volunteered to participate in the study. At the beginning of data collection, the researcher requested that participants complete the entire battery during the first session. It was noted that participants complained about the length of the session and approximately 40% did not return for the second appointment. Consequently, the methodology was adjusted to minimize attrition. See Section 5.3.1 for details regarding data screening and further attrition. After the deletion of cases due to factors such as missing data, the remaining data set contained data for 96 participants (18 of whom were from the minimum security institution, Riverbend).

The average age of the participants was 34.2 years (SD = 11.27; range = 19 to 72 years). They had an average of 9.3 years of education (range = 4 to 16 years), with 45% having at least a General Equivalency Diploma. The sample was predominantly Aboriginal or Métis (60.4%). Thirty-three percent listed their race as Caucasian and an additional 6% declined listing their race. With regard to marital status, 36.5% indicated they had never been married, 45% indicated they were living common law or were married prior to their incarceration and the remaining18.5 % indicated they were divorced, widowed or "just dating". With regard to treatment history, 38.5% reported having received treatment targeting violent offending, 10.4% reported having received treatment targeting sexual offending, and 57.3% reported receiving treatment for drugs and/or alcohol abuse. In order to determine the degree of overlap with the sample from the first study, participants were asked whether they had ever attended a treatment program at the Regional Psychiatric Center and 18% indicated that they had. A total of

16.7% of the sample indicated that they had never attended any treatment program while incarcerated.

5.1.2 Measures

This study included many of the same measures as used in Study 1 along with a number of additional measures. Specifically, personality traits were again measured using the MCMI-III and the NPI; self-esteem and self-esteem stability were measured using only the CFSEI-2 while the self-rating measure was dropped; the BSRS was again used to measure behaviour with self-report and official reports of violent behaviour added along with a collateral report of reactivity; direct measures of general affective response and of anger and anger response were also added. Socially desirable responding was assessed directly using the Paulhus Deception Scale (PDS; Paulhus, 1998). A method of tracking exposure to positive or negative daily events was also included.

5.1.2.1 Demographics questionnaire. This questionnaire consisted of several demographic questions [age, ethnicity, date of birth, FPS number (to facilitate review of official records), marital status and level of education]. It also included questions about participation in treatment programs. This measure is presented in Appendix N.

5.1.2.2 Self-complexity card sort. Self-complexity was again measured using the methodology originally developed by Linville (1982) and described in Section 4.1.2.1. For study 2, the expanded list (see Appendix M) containing 62 traits with an equal number of positive and negative words was used. This was the preferred version because it allowed for separate analysis of positive and negative self-complexity. At the analysis phase, the word "permissive" was not included in score calculations because

ongoing feedback from participants indicated that few individuals were familiar with the meaning of the word.

5.1.2.3 Millon Clinical Multiaxial Inventory (MCMI-III). The complete MCMI-III was again administered to provide a measure of narcissism, a measure of response bias and a measure of several other personality traits. See Section 4.1.2.2 for a complete description. In order to be consistent with Study 1, raw rather than base rate (BR) MCMI-III scores were used throughout the analyses.

5.1.2.4 Narcissistic Personality Inventory (NPI). The NPI was again used as an additional measure of narcissism. See Section 4.1.2.3 for a full description of the measure. In addition to the total score on the NPI used in Study 1, Study 2 included analysis of the NPI factors. The NPI is considered to have four factors: Exploitativeness/ Entitlement (E/E), Leadership/Authority (L/A), Superiority/ Arrogance (S/A) and Self-absorption/Self-admiration (S/S) (Emmons, 1984, 1987). The NPI items in each factor are listed in Appendix O.

5.1.2.5 Culture Free Self-Esteem Inventory – Form AD (CFSEI-2). The CFSEI-2 was used as a measure of self-esteem. See Section 3.1.2.2 for a complete description of the measure.

5.1.2.6 Self-esteem stability. As in Study 1, the stability of self-esteem was assessed as the standard deviation of CFSEI-2 scores across repeated measures over time. For the purposes of this second study, the measure was administered once per week for five weeks and a day, resulting in a total of six administrations.

5.1.2.7 Behavioural Stress Response Survey (BSRS). The BSRS was administered as one measure of aggressive or violent behaviour. See Section 4.1.2.6 for a complete description.

5.1.2.8 Self-report of violent behaviour. This questionnaire asked participants to disclose their history (as an adult) of violent behaviour in response to events they perceived as ego-threatening. A broad range of violent behaviour was included (from yelling to causing the death of someone) and an open-ended question was also included so that participants had the option of reporting aggressive or violent behaviours not listed on the questionnaire. Participants were asked to estimate the number of times (up to 100) they had engaged in each behaviour. Although it was likely difficult for participants to estimate the precise number of times they had yelled at someone who insulted them, for example, it was hoped that this response format would best capture the range of frequencies to be found in the participant population. A total score was computed using a weighting system whereby the reported frequency of each behaviour was multiplied by an assigned weight based on the severity of the behaviour. Scores were then summed across behaviours to create a total score. See Appendix P for the data collection protocol and a description of the weighting system.

5.1.2.9 Official criminal records. The criminal record of each participant was examined and the following information was collected: a) total number of criminal charges and convictions, b) total number of violent charges and convictions based on the following being defined as violent offenses: Murder, Attempted murder, Manslaughter, Sexual Assault, Kidnap, abduction, hijack, Escape, Assault /Aggravated assault, Robbery, Offensive weapons, Dangerous Use of Auto, Dangerous Sex Offender,

Dangerous Offender, Threatening, Criminal Negligence, Prison Breach, Careless use of firearms, Pointing firearms, c) and total time incarcerated as an adult (as an additional measure of severity of offending). Charges and convictions as a young offender were also noted. Data regarding institutional behaviour was also collected. This included a) total number of serious institutional charges, b) total number of charges involving violence and/or aggression including being disrespectful to staff. Finally, the index offense of each participant was rated on a five point categorical scale according to the presence or absence of an identifiable ego threat or experience of personal failure preceding the commission of the offense. The data collection protocol and details of the rating scale are presented in Appendix Q.

5.1.2.10 Collateral Report of Reactivity. The parole officers of each participant were asked to give their opinions regarding each offender. They were asked to describe the participant's reactions to positive and/or negative feedback if they had had the chance to observe it. This was anticipated to be a source of collateral information regarding the participants. Appendix R presents the questionnaire that was sent to the parole officers via email.

5.1.2.11 Buss-Perry Aggression Questionnaire (BPAQ). This 29 item self-report inventory provided a total score for aggression as well as four subscale scores representing four components of aggression (physical aggression, verbal aggression, anger and hostility). Buss and Perry (1992) indicate that the physical and verbal aggression subscales, which involve hurting or harming others, represent the instrumental or motor component of behaviour. They describe the anger subscale, which involves physiological arousal and preparation for aggression, as representing the

emotional or affective component of behaviour; and the hostility subscale, which consists of feelings of ill will and injustice, as representing the cognitive component of behaviour. Although this instrument has a strong theoretical foundation, the four factor model has been critiqued for explaining too little of the common variance (Bryant & Smith, 2001). See Appendix R for the BPAQ items in each subscale.

5.1.2.12 State-Trait Anger Expression Inventory (STAXI-2). The STAXI-2 (Spielberger, 1996) distinguishes between two components of anger: anger experience and anger expression. Anger experience consists of two components: anger as an emotional state, or state anger, and anger as a more stable personality trait, or trait anger. Trait anger is further deconstructed into two subscales: Angry Temperament and Angry Reaction. Anger expression is measured on four subscales: AX/In (anger directed inwardly), AX/Out (anger expressed outwardly), Ax/Con-I (attempts to control the expression of anger inwardly) and Ax/Con-O (attempts to control the expression of anger outwardly). The outward expression of anger is associated with violent behaviour and this subscale will be of primary interest in this study. The STAXI is widely used in research settings (Mayne & Ambrose, 1999) and has strong psychometric properties (Deffenbacher at al., 1996, regarding convergent and divergent validity; Fuqua, Leonard, Masters, Smith, Campbell, & Fischer, 1991 and Spielberger, 1996 regarding internal consistency; Jacobs, Latham, & Brown, 1988 regarding test-retest reliability; and Forgays, Forgays, & Speilberger, 1997 regarding consistency of the factor structure). Research on response styles on the STAXI-2 has identified several different approaches individuals tend to take when completing the questionnaire. Gollwitzer, Eid,

and Jurgensen (2005) suggest that validity is maximized when response style is taken into consideration.

5.1.2.13 Anger Variability. The State Anger subscale of the STAXI-2 allows for the tracking of changes in level of anger across time and in reaction to life events. Repeated administrations of the State Anger subscale of the STAXI-2 were therefore used to obtain a measure of anger variability. The standard deviation of the participants' scores across the six administrations was used.

5.1.2.14 Positive and Negative Affect Schedule (PANAS). Developed by Watson, Clark, and Tellegen (1988), this brief rating scale assesses positive and negative affect as two orthogonal dimensions of affect. It consists of two 10-item mood scales. Respondents endorse each item on a scale of 1 (very slightly or not at all) to 5 (extremely). The PANAS can be administered using a variety of time frame instructions (i.e. 'rate how you feel at this moment' to 'rate how you have felt over the past year' to 'rate how you feel in general'). Both subscales have been shown to have good reliability (Brown & Marshall, 2001; Crawford & Henry, 2004) and the reliability of the subscales has been shown to be unaffected by the time instructions used (Watson et al., 1988).

Construct validity of the PANAS was supported by confirmatory factor analysis which found the latent structure of the PANAS consisted of two correlated but relatively independent factors corresponding to positive affect (PA) and negative affect (NA) (Crawford & Henry, 2004). Demographic variables such as age, gender, occupation, education and age were found to have negligible impact on PANAS scores (Crawford &

Henry). The PANAS is presented in Appendix T as question five of the Significant Event Record.

5.1.2.15 Positive and Negative Affect Variability. The standard deviation of the participants' scores across the six administrations of the PANAS provided a measure of positive and negative affect stability.

5.1.2.16 Paulhus Deception Questionnaire (PDS). This 40-item questionnaire was used as a measure of socially desirable responding. It generally takes five to seven minutes to complete and requires a fifth grade reading level. Responding is on a scale from 1 (not true) to 5 (very true). It consists of two subscales (impression management and self-deceptive enhancement) and a total score. Norms for incarcerated populations are available. This instrument has shown very satisfactory internal reliability and good convergent and discriminant validity (Paulhus, 1998).

5.1.2.17 Significant events record. This brief questionnaire, created for this study, asked participants to recall an event from their past week during which they felt evaluated by someone. They were asked to briefly describe the event and the outcome and to note whether they felt the event was generally a positive or negative event for them. The complete protocol is presented in Appendix T.

5.2 Procedure

After volunteering and giving written consent to participate, participants completed as much of the initial battery of questionnaires as time and their interest allowed. This included one or more of the following: (1) the demographics questionnaire, (2) the MCMI-III, (3) the NPI, (4) the self-report of violent behaviour, (5) the BSRS, (6) the Self-Complexity card sort, (7) the Aggression Questionnaire and the

STAXI-2 and (8) the Paulhus Deception questionnaire. The self-report of violent behaviour was generally administered last because of the potential for a negative reaction from participants.

Participants also completed the first set of repeated measures at this time. This included (1) the Significant Events Record, (2) the CFSEI-2, (3) the PANAS and (4) the State Anger scale of the STAXI-2, in that order. If participants were unable to recall an 'evaluative event', the instructions for the CFSEI-2, the PANAS and the STAXI-2 directed them to respond to the items according to how they were feeling at that moment.

If the participant was able to recall one or more 'evaluative events' that occurred within one week prior to meeting with the researcher, they were asked to complete the measures describing their reactions to the event to which they felt they had the strongest reaction regardless of whether the reaction was positive or negative. They then completed the PANAS and the State Anger subscale of the STAXI-2 with specific instructions to respond to the items according to how they were feeling immediately following the event described. Although retrospective mood ratings are not ideal and may be subject to recall biases, this methodology for measuring affective reactions to events was selected because it was feasible given the restrictions and limitations on research design in the prison setting.

The repeated measures were used for general measures of stability over time and also for more specific measures of reactions to positive versus negative events. The latter involved the calculation of "change scores". The change scores were calculated by subtracting each pre-event score from the post-event score. For example, if a

participant had an anger score of 12 in the second week and an anger score of 19 in the third week, they would receive a "change score" of plus seven to represent an increase in score over time. For each participant, an average change score following positive events and an average change score following negative events was calculated for each dependent variable (i.e., self-esteem, anger, positive affect and negative affect). Average change scores were used because participants reported different numbers of positive and negative events, and, therefore, the number of data points per change score varied. Not all participants reported at least one of each type of event, and so these participants could not be included in the relevant analyses. Data from participants on weeks in which they indicated that they did not experience either a positive or negative event were also not included.

After the participant completed all measures, his parole officer was contacted and asked to complete the collateral report. This contact was made via email rather than in person due to a number of concerns from participants that the researcher may inadvertently disclose something regarding their responses if speaking to the parole officer in person. This was also anticipated to facilitate responding by the parole officers because they could respond to the questionnaires as their schedules allowed. Parole officers were informed about this aspect of the study when initially approached by the researcher for help in recruiting participants.

Finally, official records of criminal offenses and institutional offences were reviewed for each participant as per the methodology described in Section 5.1.2.9.

All test administrations for the medium-security participants took place in either a classroom or group room in the psychology unit of Saskatchewan Penitentiary.

Testing was generally done in a small group format with all instructions being delivered individually. That is, a participant would be given instructions and left to work on completing the measure, then another participant would be given instructions and so on. The group administration procedure was noted to increase participation and reduce attrition, as one of the (inadvertent) benefits of participation for individuals was time to socialize with other participants. Efforts were made to ensure that incompatible participants did not attend the same group administrations and it was made clear that the researcher would see participants individually if this was requested (one participant did request this and his data was eventually deleted for unrelated reasons).

All test administrations for the minimum-security participants took place individually in an office in the administration building of Riverbend Institution. Although it would have been preferable to continue with group administrations for consistency, there was no large room available.

5.3 Design and Statistical Analyses

All of the data were entered into a spreadsheet and analyzed using the Statistical Package for Social Sciences for Windows Version 11.0 and 14.0 (SPSS).

5.3.1 Data Screening and Missing Data

The accuracy of the data file was checked by rescoring every tenth participant's test protocols and by proofreading the data file against the test data. Three errors were found out of a total of 6500 data points. Data accuracy was also screened through examination of all variables for values outside of expected ranges and one additional typographical error was found and corrected.

The data set was then scanned for missing data. It was found that eleven participants were missing data used to calculate variability scores and at least one other questionnaire. These participants withdrew from the study at various points in the six-week enrollment (six dropped out after the first data collection session, three dropped out after the second session, one dropped out after the third session and one dropped out after the fifth session). All eleven participants without the full six weeks of data were deleted from the final data set. One additional participant was deleted in spite of having a complete data set. It was determined during data collection that this individual's level of cognitive functioning prevented him from understanding many of the questions. All remaining participants completed all measures with the exception of four participants who refused to complete the self-report of violent and aggressive behaviour. After the deletion of cases, the remaining data set contained data for 96 participants.

Due to a low response rate from participants' parole officers, only 33 participants' data sets included the results of the collateral report of reactivity and no further analysis was undertaken with this measure. .

The remaining data was then screened for missing items. In general, careful checking of each questionnaire during and following administration minimized missing items. However, Table 5.1 lists which participants omitted items on each test. The missing items were assigned a value by examining the average value of the other responses to items on the same subscale within each test. For example, if the participants skipped one item on the NPI Superiority/Arrogance (S/A) subscale, his other responses to items on this scale were averaged and this average (rounded to the nearest whole number) was used in place of the missing value. It was found that no

participant omitted more than one item on any single subtest and that the missed items appeared to be randomly distributed among the items and participants.

Table 5.1

Missing items

Questionnaire	Participant ID#	# of Missed Items
NPI	19, 24	1
	23, 90	2
BPAQ	43	1
	48	2
PDS	38, 57, 79	1
BSRS	56, 58	1

Prior to analysis, distributions of variables were examined for normality and for outliers. A data point was considered an outlier if it was more than three standard deviations from the mean. Details of the distributions of variables and the screening process are presented in Appendix T. In summary, the distribution of many variables was positively skewed and the distributions of these variables were normalized through square root transformation. The distributions of two variables (Total CFSEI-2 score and MCMI-Desirability score) were negatively skewed and to achieve normality, the scale was reflected (i.e., each score was subtracted by the largest score plus one) and then a square root transformation was applied. After transformations were applied, no univariate outliers were noted. See Table 5.2 for a summary of the variables that were transformed to attain normality of distribution. When reported in text or tables, these variables are marked with either a superscript TR or a superscript REF (if reflected).

Table 5.2

List of transformations

Variable	Transformation used	Variable	Trans. used
Self-Complexity		BSRS: Acting-Out	Square root
Total	Square root	Self-Report Violent Behav.	Square root
Positive	Square root	Total Violent Convictions	Square root
Negative	Square root	PDS	Square root
NPI		MCMI-Desirability	Reflect then Square root
Total	None	BPAQ	Square root
E/E	Square root	STAXI Anger Index	None
L/A	None	Anger Variability	Square root
S/A	Square root	Positive Affect Variability	None
S/S	None	Negative Affect Variability	None
MCMI-III		Self-Esteem	Reflect then Square root
Narcissism	None	Self-Esteem Variability	Square root
Antisocial	None		
Borderline	Square root		

5.3.2 Alpha Level and Analytical Strategy

An alpha level of .05 was used for all statistical tests. Analyses were performed using the transformed version of the variables. The first step undertaken was to explore

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the impact of socially desirable responding on all self-report measures (both independent and dependent variables). The results are presented in Section 5.4.1. Next, differences on key variables according to ethnicity were explored in a series of ANCOVA analyses (with the two measures of socially desirable responding entered as covariates). These results are presented in Section 5.4.2. The initial exploration of the data is reported in Sections 5.4.4 through 5.4.6 as a series of correlations, examining the relationships among the key variables of narcissism, self-complexity, self-esteem and affect (including stability of self-esteem and affect), and behaviour.

A series of t tests is presented that test the hypothesized "buffering effect" of self-complexity (see Section 4.5.7). In order to test the "buffering effect" hypotheses regarding the differential impact of high versus low self-complexity following negative versus positive evaluative events, a series of scores (i.e., "change scores") were calculated for self-esteem, positive affect, negative affect and anger as described in Section 5.2.

Finally, in Section 5.4.8, a series of multiple regression analyses are presented. These analyses were performed to examine the extent to which narcissism and self-complexity accounted for variance in the three main dependent variables of acting-out, self-reported violent behaviour and official report violent behaviour (violent crime convictions).

5.4 Results

5.4.1 Socially Desirably Responding

Prior to testing the hypotheses of this study, the results of the measures of socially desirable responding were examined and the relationship of these measures to

other key variables was explored in order to determine the extent to which response bias impacted other variables.

5.4.1.1 The PDS and the MCMI-III Desirability Scale. The mean total score on the Paulhus Deception Scale (PDS) for this sample was 9.28 and scores ranged from 0 to 29. The mean score corresponds to a *t* score of 52 when compared to the general population norms and a *t* score of 54 when compared to prison population norms (Paulhus, 1998). This suggests that, overall, this sample was not prone to either excessive impression management or self-deceptive enhancement. However, 15 participants (approximately 16%) scored 15 or higher which is equivalent to a *t* score of 70 (compared to a prison population). Of those 15 participants, 4 received scores of 22 or higher, equivalent to a *t* score greater than 90.

The PDS is composed of two subscales, Impression Management and Self-Deceptive Enhancement. Although only the total PDS score is used in subsequent analysis, the subscales are considered here for descriptive purposes (the subscales are also discussed in Appendix Z). The mean score on the Impression Management subscale was 5.74, which is equivalent to a *t* score of 50 compared to prison population norms. The range was 0 to 15 with the highest *t* score being 77. Seven participants had a *t* score of 70 or greater. The mean score on the Self-Deceptive Enhancement subscale was 3.54, equivalent to a *t* score of 55. The range was 0 to 16, with the highest *t* score being greater than 90. Twelve participants (13%) received a *t* score of 70 or greater.

The mean raw score on the MCMI-III Desirability scale was 14.52, which is equivalent to a base rate (BR) score of 67. The distribution was negatively skewed and the median score was 15 (corresponding to BR 70). Both the mean and median fall

within normal limits and confirm that overall, the sample was not prone to excessive socially desirable responding. The raw scores ranged from 0 to 21, corresponding to a BR range of 0 to 100. Sixteen participants (17%) received a BR score of greater than 85, suggesting that social desirability significantly impacted their responding.

The PDS and the MCMI-III Desirability scale were significantly correlated (r = .23, p = .02), as would be expected given that both assess biased responding in the form of presenting oneself in a positive manner. Using the transformed versions of both scales made little difference to the correlation (r = .21, p = .04).

5.4.1.2 Correlation of the PDS with other key variables. The association of key variables with the PDS was explored. It was found that individuals presenting themselves in a positive light also reported fewer antisocial and borderline personality traits, as measured by the MCMI-III (r = -.38, p < .001; r = -.27, p < .001). The PDS score was also associated with less aggression as measured by the BPAQ (r = -.23, p = .02) and less overall anger as measured by the Anger Index of the STAXI-2 (r = -.30, p < .001). These results are consistent with expectations. See Table 5.3 for a summary of these correlations.

Table 5.3

Correlation of all variables with PDS (N = 96)

	r		r
Self-Complexity	-.16	BPAQ	-.23*
MCMI-Narcissism	.15	Anger Index	-.30**
MCMI- Antisocial	-.38**	Anger Variability	-.03
MCMI-Borderline	-.27**	Self-Esteem	-.16
NPI	.17	Self-Esteem Variability	.07
BSRS– Acting out	-.17	Positive Affect Variability	.16
Self-Report Violence[a]	.09	Negative Affect Variability	.06
Violent Convictions	.03		

[a]N = 92

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

5.4.1.3 Correlation of the MCMI-III Desirability scale with other key

variables. The pattern of correlations of key variables with the MCMI-III Desirability

Scale was similar to the correlations with the PDS. The MCMI-III Desirability scale

was associated with increased narcissism as measured by the MCMI-III ($r = -.41$, $p <$

.001), and to a lesser extent narcissism as measured by the NPI ($r = -.22$, $p = .03$), such

that individuals responding in a socially desirable manner appear more narcissistic.

While this may suggest that narcissistic individuals try to present themselves in a

socially desirable manner, it may also suggest that the narcissism measures are tapping a

respondents attempt to present himself in a socially desirable way.

Individuals scoring higher on social desirability also report fewer antisocial and

borderline personality traits ($r = .32$, $p = .002$; $r = .60$, $p < .001$), less acting-out ($r = .27$,

p = .01), lower aggression and anger scores (*r* = .47, p < .01; *r* = .44, *p* < .001), less variability in their anger scores from week to week (*r* = .24, *p* = .02), and higher self-esteem (*r* = .69, *p* < .001). See Table 5.4 for a summary of the correlations of key variables with the MCMI-Desirability scale.

In the majority of subsequent analyses, socially desirable responding is controlled for statistically through the use of partial rather than zero-order correlations and through the use of ANCOVA rather than *t* tests or ANOVA, with both the MCMI-Desirability scale and the PDS as covariates.

Table 5.4

Correlation of key variables with MCMI-III Desirability[REF] (N = 96)

	r		*r*
Self-Complexity	.14	BPAQ	.47**
MCMI-Narcissism	-.41**	Anger Index	.44**
MCMI- Antisocial	.32**	Anger Variability	.24*
MCMI-Borderline	.60**	Self-Esteem[REF]	.69**
NPI	-.22*	Self-Esteem Variability	.07
BSRS– Acting out	.27**	Positive Affect Variability	-.02
Self-Report Violence[a]	.03	Negative Affect Variability	.10
Violent Convictions	-.04		

[a]N = 92

* *p* < .05; ** *p* < .01.

5.4.2 Differences Based on Ethnicity

A series of ANCOVA analyses were performed to determine if the mean differences on each of the variables tested were associated with ethnicity after adjusting for differences in social desirability scores (PDS and MCMI-Y). For the purposes of these analyses, participants who identified themselves as Aboriginal or Métis ($n = 58$) were compared together to participants who identified themselves as Caucasian ($n = 32$). The six individuals who identified their ethnicity as "other" or who declined to respond were not included in these analyses. The PDS score and the MCMI-Social Desirability score were entered as covariates and then the Caucasian group mean scores were compared to the Aboriginal group mean scores on 15 different variables as listed in Table 5.5. Additionally, the mean scores of the two groups were compared on both of the social desirability measures (PDS and MCMI-Social Desirability). Of the 17 comparisons, four were significant at $p < .05$. With 17 comparisons, there is an increased risk of Type I error (falsely rejecting the null hypothesis). However, because the intent of these analyses is to identify which variables ethnicity may impact observed differences on dependent variables in future analyses, it was decided that an alpha of .05, rather than the a more stringent alpha level, was appropriate.

First, Aboriginal and Métis participants scored higher on the MCMI-III Narcissism scale ($M = 16.21$, $SD = 4.28$) than did the Caucasian participants ($M = 13.53$, $SD = 4.25$), $F (3, 86) = 6.12$, $p = .02$. Second, Aboriginal and Métis participants scored higher on the MCMI-III Antisocial Personality Scale ($M = 14.67$, $SD = 4.85$) than did the Caucasian participants ($M = 12.56$, $SD = 5.79$), $F (3, 86) = 8.88$, $p = .004$.

Third, Aboriginal and Métis participants scored higher on the self-report of violent

behaviour measure ($M = 629.35$, $SD = 518$; range = 13 to 1336) than did the Caucasian

participants ($M = 335.92$, $SD = 351$; range = 44 to 2348), $F(3, 82) = 10.37$, $p = .002$.

Finally, Caucasian participants reported more variability in their negative affect ($M =$

7.18, $SD = 3.83$) across the data collection period than did the Aboriginal or Métis

participants ($M = 5.28$, $SD = 3.38$), $F(3, 86) = 5.94$, $p = .02$). See Table 5.5 for a

summary of the results.

5.4.3 Description of Reactivity Ratings of Index Offenses.

For descriptive purposes, the "reactivity rating" of the index offenses of the

sample was analyzed using SPSS Frequencies. Of the 96 index offense descriptions

rated, 22 of the descriptions did not contain sufficient information to determine whether

they were reactive to insult/ego threat or instrumental. Of the remaining 74 descriptions,

37 (38%) were assigned a rating of 1 or 2 (clearly or likely instrumental) and 37 (38%)

were assigned a rating of 4 or 5 (likely or clearly reactive to insult or ego threat). The

majority of the offenses rated 1 or 2 involved the commission of offenses with the aim

of securing drugs, alcohol or money. The offenses rated 4 or 5 often involved reactions

to losses or insults such as the ending of a relationship or feeling insulted by the victim.

Table 5.5

Summary of ANCOVA analyses for differences by ethnicity

Variable	Caucasian (n = 32)		Aboriginal (n = 58)		
	M	SD	M	SD	F
Self-Complexity	2.20	0.80	2.14	0.68	<.01
MCMI-Narcissism	13.53	4.25	16.21	4.28	6.12*
MCMI-Antisocial	12.56	5.79	14.67	4.85	8.88**
MCMI-Borderline	8.18	6.20	8.81	5.70	3.32
NPI	10.62	5.83	11.74	5.20	0.24
BSRS: Acting-out	7.16	4.80	6.60	4.89	0.04
SR Violent Behaviour [a]	335.92	351.38	629.35	518.00	10.37**
OR Violent Behaviour	6.03	5.76	6.16	4.18	0.32
BPAQ	73.16	16.76	72.47	18.92	0.35
STAXI anger index	37.44	16.54	34.52	14.00	0.01
Anger Variability	7.97	5.30	6.40	5.58	1.79
Self-Esteem	21.94	7.38	24.38	5.36	0.61
Self-Esteem Variability	2.00	1.10	2.28	1.24	1.22
Positive affect Variability	7.62	3.06	6.90	2.88	1.74
Negative Affect Variability	7.18	3.83	5.28	3.38	5.94*
PDS [b]	8.19	4.94	9.83	5.56	1.94
MCMI-Y [b]	13.47	5.04	14.09	3.70	1.89

Note. The covariates were PDS and MCMI-Desirability scores.

Note. Non-transformed version of variables used.

[a] SR Violent Behaviour, N = 86

[b] not controlling for the other measure of socially desirable responding.

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

5.4.4 Correlational Analyses of Narcissism.

As in study 1, narcissism was measured by both the NPI (M = 11.43, SD = 5.37, range = 1 –25) and the narcissism scale of the MCMI-III (M = 15.35, SD = 4.56, range = 6 –27). Twenty-one participants scored above the cut-off of BR 75 for the presence of narcissistic personality traits on the MCMI-III and of those 21 participants, 10 scored greater than BR 85, suggesting the presence of narcissistic personality disorder. Scores on the narcissism scales of the MCMI-III and the NPI were positively correlated ($r = .51, p < .001$).

Factor analysis of the NPI suggests it consists of four factors (Emmons, 1984): Exploitativeness/ Entitlement (E/E), Leadership/Authority (L/A), Superiority/ Arrogance (S/A) and Self-absorption/Self-admiration (S/S). As expected, the factors correlated with each other and with the NPI total score. See Table 5.6 for the intercorrelations of these factors and the correlations with the NPI total score and MCMI-III Narcissism scale. The pattern of factor intercorrelations in the current sample is similar but not identical to Emmons' sample of 388 undergraduates. For example, in the current sample, the weakest (although still statistically significant) correlation was between the S/S and S/A factors while in Emmons' sample, the weakest correlation was between the S/S and L/A factors. Also, Emmons found no significant correlation between the MCMI Narcissism scale and the S/S factor while in the current study, a relatively strong correlation was found ($r = .47, p < .01$).

Table 5.6

NPI factor scores correlation matrix

		E/E	L/A	S/A	S/S	MCMI-Narcissism
			NPI			
NPI						
	Total	.74**	.66**	.60**	.77**	.47**
	EE		.49**	.42**	.45**	.30**
	LA	.45[a]		.35**	.33**	.34**
	SA	.44[a]	.57[a]		.24*	.17
	SS	.40[a]	.16[a]	.40[a]		.47**
MCMI-Narc[b]		.31*	.25*	.48**	.07	

Note. Results for current sample (N= 96) are provided in top triangle; between factor correlations published by Emmons (1987) provided in lower triangle (N= 388; undergraduates).

[a] Level of significance not provided

[b] N = 48; undergraduates

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

5.4.4.1 Narcissism and Self-Esteem. Self-esteem was measured using the CFSEI-2 with six weekly administrations. The self-esteem score is the mean score across the six administrations ($M = 23.5$, $SD = 6.13$, median = 24.83, range = 8.5 to 31.67). The distribution of this variable was negatively skewed and a transformation (reflect and square root) was applied. Consequently, the direction of interpretation must also be reversed. Reflected variables, when reported, are marked with a superscript REF (i.e., CFSEI-2[REF]). It was expected that narcissism and self-esteem would be positively correlated. The total score and all three subscales of the CFSEI-2 were correlated with

narcissism as measured by the MCMI-III but only if not controlling for socially desirable responding. Self-esteem did not correlate with the total score of the NPI. An examination of the NPI factors showed that only the Leadership / Authority (L/A) subscale was significantly correlated with self-esteem. Only the social self-esteem subscale of the CFSEI-2 showed a significant correlation with the L/A subscale of the NPI when socially desirable responding was controlled for. These results are summarized in Table 5.7.

Table 5.7

Correlation of narcissism measures with self-esteem (N = 96)

		Self-Esteem		
		Total[REF]	General	Personal	Social
MCMI-Narc		.04	.09	-.001	.01
		-.26*	-.21*	-.24*	-.25*
NPI					
	Total	.06	.08	.08	-.01
		-.11	-.09	-.06	-.14
	E/E[TR]	-.03	.04	-.06	-.02
		.06	.11	.02	.06
	L/A	-.14	-.03	-.09	-.22*
		-.25*	-.18	-.20*	-.31**
	S/A[TR]	.01	.06	.01	.03
		-.05	-.02	-.04	-.04
	S/S	.09	.05	.13	.02
		-.08	-.10	-.02	-.12

Note. Partial correlations controlling for social desirability (MCMI-Y; PDS) are presented in top row; zero-order correlations in the bottom row.

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

5.4.4.2 Narcissism and self-esteem stability. Self-Esteem stability was determined by the standard deviation of the CFSEI-2 Total score across the six administrations. It was predicted that there would be a negative correlation between narcissism and self-esteem stability such that individuals higher in narcissism would display less stable self-esteem. Table 5.8 displays the partial and zero-order correlations between the measures of narcissism and self-esteem stability. No direct association between narcissism and self-esteem stability was found (regardless of controlling for social desirability).

Table 5.8

Correlations of narcissism measures and self-esteem stability (N = 96)

	Self-Esteem Stability			
	Total^{TR}	General	Personal	Social
MCMI-Narcissism	-.01	.06	.18	.12
	-.02	-.02	.10	.04
NPI				
Total	-.14	-.04	.13	-.03
	-.13	-.07	.09	-.06
E/E^{TR}	-.10	-.01	.14	-.01
	-.07	.02	.18	.02
L/A	-.19	-.12	-.03	-.15
	-.19	-.15	-.06	-.18
S/A^{TR}	-.10	-.04	.06	.02
	-.11	-.06	.06	.01
S/S	-.14	-.09	.08	-.08
	-.12	-.12	.05	-.10

Note. Partial correlations controlling for social desirability (MCMI-Y; PDS) are presented in top row; zero-order correlations in the bottom row.

5.4.4.3 Narcissism, affect and anger. Affect and anger were measured in several ways. General positive and negative affects were measured using repeated administrations of the PANAS. For each participant, a score for average positive affect ($M = 28.36$, $SD = 7.01$, range = 13.33 to 44.50) and for average negative affect was calculated ($M = 17.39$, $SD = 16.50$, range = 10.00 to 31.67). In general, participants reported more positive than negative affect throughout the study. Average positive and average negative affects were not correlated ($r = .01$, $p = .94$) even when controlling for socially desirable responding ($r = .03$, $p = .97$). This is consistent with previous research with the PANAS (Watson et al., 1988; Parker et al., 1999). Watson et al. reported that correlation between positive and negative affect scales is consistently low, ranging from -.12 to -.23 and, in Watson et al.'s validation study of the PANAS, the PA and NA scale intercorrelation ranged from -.12 to -.23 depending upon whether participants were instructed to rate their mood at the current moment, throughout the year or in general..

This study included the BPAQ as a measure of aggression ($M = 72.48$, $SD = 17.90$, range = 41 to 122). The BPAQ contains four subscales: Anger, Verbal Aggression, Hostility and Physical Aggression. The STAXI-2 was also included as a measure of anger. The STAXI-2 does not provide a total score but rather is composed of a number of subscales. The most general measure of anger provided by the STAXI-2 is the Anger Index ($M = 35.19$, $SD = 14.77$, range = 5.0 to 65.0). The State Anger subscale of the STAXI-2 was administered weekly and an average state anger score was calculated for each participant ($M = 21.97$, $SD = 6.89$, range = 15.00 to 45.67). The Anger Index of the STAXI-2 and the Total score of the BPAQ were strongly correlated

($r = .66$, $p < .001$). See Table 5.9 for the correlations of the total scores and subscales of

the BPAQ and STAXI-2.

Table 5.9

Correlations of the total and subscales of the STAXI-2 and BPAQ (N = 96)

| | BPAQ | | | | |
	Total^{TR}	Anger	Hostility	Verbal Aggress	Physical Aggress
STAXI					
Anger Index	.66**	.70**	.43**	.31**	.55**
	.74**	.76**	.56**	.36**	.62**
Trait Anger	.59**	.62**	.45**	.20*	.52**
	.73**	.70**	.66**	.34**	.62**
State Anger	37**	.37**	.35**	.14	.26*
	.43**	.45**	.40**	.18	.31**
Anger Express Out (AX-O)	.61**	.55**	.49**	.35**	.49**
	.62**	.57**	.52**	.37**	.52**
Anger Expression In (AX-I)	.49**	.44**	.47**	.23*	.27**
	.61**	.58**	.60**	.30**	.39**
Anger Control Out (AC-O)	-.45**	-.54**	-.17	-.09	-.51**
	-.55**	-.62**	-.33**	-.16	-.57**
Anger Control In (AC-I)	-.47**	-.51**	-.26*	-.27**	-.40**
	-.56**	-.58**	-.39**	-.32**	-.48**

Note. Partial correlations controlling for social desirability (MCMI-Y; PDS) are presented in top row;
zero-order correlations in the bottom row.
* p < .05; ** $p < .01$.

There was a relatively consistent pattern of correlation across the various

subscales of the BPAQ. In general, there was a positive correlation with State and Trait

Anger and with Anger Expression (both outwardly and inwardly). There was generally a negative correlation between the BPAQ and the STAXI-2 subscales of Anger Control (both inwardly and outwardly) such that more self-reported anger and aggression was associated with less control of anger. There were no significant differences when controlling for socially desirable responding indicating that these relationships were not caused by common variance shared with social desirability.

The correlations of the two PANAS scales with the STAXI-2 and BPAQ were generally as expected (see Table 5.10 and 5.11 respectively). Negative affect as measured by the repeated administrations of the PANAS was positively correlated with the BPAQ Total score ($r = .30$, $p= .003$) and with the Anger and Hostility subscales ($r = .28$, $p = .007$; $r = .34$, $p = .001$), such that those who reported higher average negative emotions also reported more BPAQ anger and hostility. Negative affect was also associated with a higher STAXI-2 Anger Index ($r = .24$, $p = .02$), higher trait anger ($r = .34$, $p = .001$), and more anger expression, both outwardly ($r = .29$, $p = .005$) and inwardly, ($r = .41$, $p < .001$). Average positive affect as measured by the repeated measures of the PANAS showed no correlation with either the total or subscales of the BPAQ. With regard to the STAXI-2, when socially desirably responding was not controlled for statistically, average positive affect negatively correlated with the Anger Index ($r = -.25$, $p = .01$) and with the Anger Expression-Out subscales ($r = -.22$, $p = .03$), such that individuals reporting more positive affect reported less general anger and less outward expression of anger. Interestingly, average positive affect but not average negative affect was associated with the STAXI-2 Anger Control subscales. Individuals reporting higher average positive affect also reported more efforts to control the

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expression of anger, both outwardly ($r = .27$, $p = .01$), and inwardly ($r = .27$, $p = .01$). Controlling for response bias reduced the correlation of average positive affect with the STAXI-2 anger index ($r = -.16$, $p = .13$) and also reduced the correlations with anger control, both outwardly ($r = .19$, $p = .06$) and inwardly ($r = .18$, $p = .09$).

Table 5.10

Correlations of PANAS and BPAQ (N = 96)

			BPAQ		
				Verbal	Physical
	Total^{TR}	Anger	Hostility	Aggression	Aggression
PANAS					
Positive	-.04	-.02	-.05	-.07	-.02
	-.14	-.12	-.15	-.10	-.10
Negative	.30**	.28**	.34**	.15	.12
	.30**	.30**	.35**	.17	.13

Note. Partial correlations controlling for social desirability (MCMI-Y; PDS) are presented in top row; zero-order correlations in the bottom row.
* $p < .05$; ** $p < .01$.

Table 5.11

Correlations of PANAS and STAXI-2 (N = 96)

				STAXI-2			
	Index	Trait	State	AX-O	AX-I	AC-O	AC-I
PANAS							
Positive	-.16	-.08	-.08	-.19	.08	.19	.18
	-.25*	-.19	-.12	-.22*	-.06	.27**	.27**
Negative	.24*	.34**	.76**	.28**	.41**	-.08	-.02
	.24*	.39**	.74**	.29**	.41**	-.09	-.03

Note. Partial correlations controlling for social desirability (MCMI-Y; PDS) are presented in top row; zero-order correlations in the bottom row.
* $p < .05$; ** $p < .01$.

Previous research has shown a relatively consistent relationship between narcissism and anger. In the present study, it was expected that the Exploitativeness/Entitlement (E/E) factor of the NPI would show a positive correlation with measures of anger and, more specifically, with hostility as measured by the BPAQ. Some suggest, however, that the relationship between narcissism and anger is not direct but rather that narcissism interacts with ego-threatening events with regard to anger. In the present study, once socially desirable responding was partialled out, narcissism as measured by the MCMI-III was correlated with anger expression, both inwardly ($r = .21$, $p = .04$) and outwardly ($r = .22$, $p = .03$). Similarly, it was also correlated with the BPAQ total score[TR] ($r = .24$, $p = .02$) and with the hostility ($r = .26$, $p = .01$) and verbal aggression subscales ($r = .24$, $p = .02$) of the BPAQ.

The NPI was also correlated with anger expression outwardly ($r = .26$, $p = .01$) but not inwardly ($r = .15$, $p = .15$). Unlike the MCMI-Narcissism scale, the NPI total score was also correlated with the STAXI anger index ($r = .32$, $p = .002$). Also unlike the MCMI-Narcissism scale, higher NPI narcissism was associated with less control of anger, both outwardly ($r = -.21$, $p = .04$) and inwardly ($r = -.32$, $p = .001$). The NPI was also correlated with the BPAQ total score[TR] and all subscales. The E/E subscale of the NPI (E/E[TR]) showed the expected correlation with the Hostility subscale of the BPAQ ($r = .35$, $p < .001$) along with significant correlations with all of the BPAQ scores. A similar pattern was seen with the S/A[TR] subscale and less so with the L/A subscale. The S/S subscale correlated significantly only with BPAQ physical aggression. See Table 5.12 for a summary of all of the correlations between the measures of narcissism and the measures of anger and aggression.

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Table 5.12

Correlation of narcissism with anger and aggression measures (N = 96)

	MCMI-	NPI				
	Narc	Total	E/E^{TR}	S/A^{TR}	L/A	S/S
STAXI						
Anger Index	.12	.32**	.33**	.32**	.21*	.14
	-.09	.15	.38**	.26*	.07	-.005
Trait Anger	.07	.18	.14	.23*	.04	.10
	-.02	.08	.29**	.12	.03	-.00
State Anger	.08	.16	.10	.03	.18	.17
	-.04	.10	.12	.01	.12	.10
AX-O	.22*	.26*	.26*	.16	.32**	.11
	.12	.20	.33**	.16	.25*	.06
AX-I	.21*	.15	.12	.28**	-.05	.04
	-.04	-.002	.19	.17	-.16	-.09
AC-O	-.02	-.21*	-.22*	-.26*	-.12	-.09
	.14	-.09	-.27**	-.23*	-.02	.02
AC-I	.005	-.32**	-.34**	-.31**	-.25*	-.10
	.15	-.18	-.40**	-.27**	-.14	.02
BPAQ Total^{TR}	.24*	.37**	.40**	.36**	.28**	.18
	-.01	.21*	.48**	.29**	.14	.04
Anger	.08	.22*	.22*	.27**	.12	.10
	-.14	.07	.30**	.21*	-.01	-.03
Hostility	.26*	.32**	.35**	.31**	.19	.15
	.01	.16	.44**	.24*	.06	.01
Verbal	.24*	.33**	.38**	.23*	.35**	.14
	.12	.26**	.48**	.23*	.28**	.08
Physical	.18	.35**	.35**	.34**	.30**	.20*
	.02	.24**	.39**	.29**	.20	.10

Note. Partial correlations controlling for social desirability (MCMI-Y; PDS) are presented in top row; zero-order correlations in the bottom row.

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

5.4.4.4 Narcissism and affect stability. The standard deviation of the PANAS positive affect ($M = 7.34$, $SD = 2.98$, range = 2.45 to 13.51) and the standard deviation of the PANAS negative affect scores ($M = 6.07$, $SD = 5.62$, range = 0.00 to 14.83) across the six administrations served as one measure of affect stability. The standard deviation of the STAXI-State Anger scores ($M = 7.09$, $SD = 5.62$, range = 0.0 to 21.11) across the six administrations served as the other. Higher scores indicate less stability or, conversely, more variability. The three stability scores were positively correlated (see Table 5.13).

Table 5.13

Correlation matrix of measures of affect stability (N = 96)

	Variability of Negative Affect	Variability of Anger
Variability of		
Positive Affect	.41**	.22*
	.42**	.21*
Negative Affect		.64**
		.59**

Note. Partial correlations controlling for social desirability (MCMI-Y; PDS) are presented in top row; zero-order correlations in the bottom row.

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

As would be expected, there was a stronger relationship between variability of anger and variability of negative affect ($r = .64$, $p < .001$) than between variability of anger and variability of positive affect ($r = .22$, $p = .04$). However, unexpectedly, there were no direct relationships between any of the measures of narcissism and affect

stability across the data collection period. See Table 5.14 for a summary of the

correlations between narcissism and affect stability.

Table 5.14

Correlations of narcissism and affect stability (N = 96)

	PANAS		STAXI-2
	Positive Affect Variability	Negative Affect Variability	Anger Variability^{TR}
MCMI-III			
Narcissism	-.11	-.04	.01
	-.08	-.07	-.10
NPI			
Total	-.10	.01	.09
	-.07	.00	.04
E/E^{TR}	-.05	.02	.08
	-.07	.01	.11
S/A^{TR}	-.11	.05	.02
	-.08	.04	.00
L/A	-.11	-.08	.13
	-.09	-.10	.05
S/S	-.06	.00	.11
	-.03	-.01	.07

Note. Partial correlations controlling for social desirability (MCMI-Y; PDS) are presented in top row; zero-order correlations in the bottom row.

5.4.4.5 Narcissism and aggressive/violent behaviour. The present study

included both self-report and official report measures of aggressive and violent

behaviour. The official report measure of violent behaviour (ORBEH) consisted of data

collected from participants' criminal records and penitentiary files regarding charges

and convictions for violent behaviour and institutional misconduct. The number of

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charges for institutional misconduct ranged from 0 to 53; however, 56% of the sample had one or no institutional charges. Additionally, the majority of charges on participants' records were minor infractions such as "disobeying a written rule", sleeping late or covering the window in their cell. There were generally very few institutional charges for offenses that were considered violent (68% had no violent institutional charges and only 3% had more than five).

Data was collected regarding the number of both criminal charges and criminal convictions for each participant. However, only the number of convictions was used in analyses because it was deemed a more accurate and conservative measure of criminal behaviour. Adult and youth convictions for violent offenses were noted separately. Although there were very few youth violent convictions, it was decided that the most complete measure of official violent behaviour would be total number of violent convictions including both adult and youth information ($M = 5.99$, $SD = 4.74$, range = 0 to 23). See Table 5.15 for the frequencies of number of adult, youth and total violent convictions.

The self-report measures included the BSRS: Acting-Out subscale (AO^{TR}) $M = 6.91$, $SD = 4.85$, range = 0 to 20) and the self-report of violent behaviour ($SRBEH^{TR}$) ($M = 502.67$, $SD = 474.78$, range = 0 to 2348). As noted in Section 5.3.1, four participants refused to complete this measure resulting in a sample size of 92 for all analyses using the self-report of violent behaviour. The distributions of both variables showed significant positive skew and square root transformations were applied.

Table 5.15

Frequencies of adult, youth and total violent convictions (N = 96)

	Number of Participants					
	Youth Convictions		Adult Convictions		Total Violent Convict.	
	Frequency	%	Frequency	%	Frequency	%
0	64	67	6	6	2	2
1	10	10	12	12	9	9
2	4	4	16	17	14	15
3	7	7	12	12	11	11
4	6	6	10	10	11	11
5-10	5	5	30	33	35	36
11-15			5	5	9	9
16-20			3	3	3	3
More than 20			2	2	2	2

The three measures of aggressive behaviour appeared to be relatively independent. The two self-report measures were not correlated ($r = .03$, $p = .80$) even when controlling for socially desirable responding ($r = .03$, $p = .76$) and the self-reports and official reports of violent behaviour also were not correlated ($r = .19$, $p = .12$). See Table 5.16 for the correlation matrix of these three variables.

No direct relationship between acting-out or violent behaviour and narcissism was expected. However, it was found that BSRS Acting-out[TR] was correlated with the NPI total score ($r = .22$, $p = .04$). No direct relationship was found between self-reported violent behaviour and the measures of narcissism.

Table 5.16

Correlation matrix of the three measures of behaviour

	ORBEH^{TR}	BSRS: Acting-Out^{TR}
SRBEH^{TR}	.18	.03
	.19	.03
ORBEH^{TR}		.07
		.08

Note. Partial correlations controlling for social desirability (MCMI-Y; PDS) are presented in top row; zero-order correlations in the bottom row.

Note. N = 96 except analyses involving SRBEH^{TR}, N = 92.

Finally, it was found that the total number of violent convictions was negatively correlated with the MCMI Narcissism scale ($r = -.22$, $p = .04$) but not correlated with the NPI or any NPI subscales. See Table 5.17 for a summary of the correlations between narcissism and behavioural measures.

5.4.5 Self-Esteem and Anger, Aggression and Acting-out

It was expected that there would be no direct relationship between self-esteem and measures of negative affect (i.e., anger and aggression) or between self-esteem and measures of violent or aggressive behaviour. This hypothesis was not supported. See Table 5.18 for the partial and zero-order correlations between measures of self-esteem, anger, aggression and acting-out.

Self-esteem was found to be associated with the STAXI state anger scale and with the BPAQ^{TR} such that individuals reporting higher self-esteem reported less anger and aggression. Higher self-esteem was also associated with more stable self-esteem (i.e., less variability in scores over the data collection period). There were no

relationships between self-esteem and self-reports or official reports of violent

behaviour

Table 5.17

Correlations of narcissism and acting-out/violent behaviour

	BSRS: Acting-out[TR]	SRBEH[TR]	ORBEH[TR]
MCMI-III			
Narcissism	.10	.08	-.22*
	-.02	.06	-.22*
NPI			
Total	.22*	.03	-.00
	.11	.04	-.04
E/E[TR]	.20	.04	.05
	.22*	.04	.05
L/A	.20	-.02	.03
	.10	-.03	-.01
S/A[TR]	-.00	.06	-.09
	-.05	.06	-.12
S/S	.18	.08	.12
	.08	.08	.10

Note. Partial correlations controlling for social desirability (MCMI-Y; PDS) are presented in top row; zero-order correlations in the bottom row.

Note. N = 96 except analyses involving SRBEH[TR], N = 92.

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

The zero-order correlation between self-esteem[REF] and BSRS Acting-out scale[TR] was $r = .28$, $p < .01$, indicating that higher self-esteem was associated with lower scores on the acting-out scale. However, when socially desirably responding was controlled for statistically, this association dropped to below significance ($r = .12$, $p > .05$).

Table 5.18

Correlational analyses of self-esteem with anger, aggression and acting-out

	vSE^{TR}	Anger	$vAng^{TR}$	$BPAQ^{TR}$	AO^{TR}	$SRBEH^{TR}$	$ORBEH^{TR}$
SE^{REF}	.40**	.24*	.15	.38**	.12	-.08	-.10
	.33**	.46**	.27**	.57**	.28**	-.04	-.02
vSE^{TR}		.03	.02	.03	-.06	-.08	.04
		.04	.04	.05	-.04	-.07	.05

Note. Partial correlations controlling for social desirability (MCMI-Y; PDS) are presented in top row; zero-order correlations in the bottom row.

Note. N = 96 except analyses involving $SRBEH^{TR}$, N = 92.

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

5.4.6 Correlational Analyses of Self-Complexity

5.4.6.1 Descriptives. The mean self-complexity score (SC) in the present study ($M = 2.18$, $SD = .76$, range = 0.97 to 4.68) was similar to the mean self-complexity score found in Study 1 ($M = 2.21$, $SD = 1.01$, range = 0.53 to 4.78) in spite of the expansion of the number of traits to be sorted from 33 to 61. The distribution of this variable was positively skewed and a square root transformation was applied. The transformed version of the variable is used in all subsequent analyses and is marked with a superscript TR.

Both the mean positive self-complexity score ($M = 1.49$, $SD = .91$) and the mean negative self-complexity score ($M = 1.39$, $SD = .71$) were significantly lower than the total self-complexity score as would be expected given that they were composed of sub-sets of the complete sort ($t(95) = 7.45$, $p < .001$; $t(95) = 10.79$, $p < .001$, respectively). The three self-complexity scores were positively correlated (see Table 5.19). Further

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analyses (parallel to the analyses reported in this section) using positive and negative self-complexity rather than total self-complexity are presented in Appendix V.

Table 5.19

Correlations of the three measurements of self-complexity (N = 96)

	Negative SC[TR]	Positive SC[TR]
Total SC[TR]	0.76**	0.79**
Negative SC[TR]	1.00	.54**
Positive SC[TR]		1.00

** $p < .01$.

5.4.6.2 Correlations of self-complexity with narcissism, affect, and self-esteem. It was expected that self-complexity would not have a direct relationship to narcissism, self-esteem or affect. This was partially confirmed in that no significant correlation was found between self-complexity and narcissism as measured by the MCMI-III ($r = -.01$, $p = .95$) or as measured by the NPI ($r = .12$, $p = .26$). However, self-complexity was correlated with average negative affect ($r = .24$, $p = .02$) and with average state anger ($r = .29$, $p = .01$), such that higher self-complexity was associated with more negative affect and anger. Additionally, self-complexity was negatively correlated with self-esteem as measured by the CFSEI-2 Total score[REF] ($r = .23$, $p = .02$), such that higher self-complexity was associated with lower self-esteem. Controlling for response bias reduced the strength of the correlation ($r = .18$, $p = .07$). These correlations are summarized in Table 5.20.

Table 5.20

Correlations of key variables with self-complexity (SC^{TR})

	SC^{TR}		SC^{TR}		SC^{TR}
MCMI-Narc	-.01	vSE^{TR}	.11	AO^{TR}	.24*
	-.07		.11		.23*
NPI	.12	vPA	.02	$SRBEH^{TR}$	.01
	.06		-.003		-.04
Self-Esteem^{REF}	.18	vNA	.11	$ORBEH^{TR}$	.12
	.23*		.12		.07
PA	-.07	$vAng^{TR}$	.23*		
	-.12		.25*		
NA	.24*				
	.24*				
Anger	.29**				
	.30**				

Note. Partial correlations controlling for social desirability (MCMI-Y; PDS) are presented in top row; zero-order correlations in the bottom row.

Note. N = 96 except analyses involving $SRBEH^{TR}$, N = 92.

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

Self-complexity was not directly associated with measures of the stability of self-esteem ($r = .11$, $p = .28$), the stability of positive affect ($r = .02$, $p = .84$) or the stability of negative affect ($r = .11$, $p = .27$). The correlation of self-complexity with the stability of state anger was significant ($r = .23$, $p = .02$). Unexpectedly, higher self-complexity was associated with more variability in anger. See Table 5.20 for a summary of these correlations.

5.4.6.3 Correlations of self-complexity with behaviour variables. Self-complexity was positively associated with acting-out as measured by the BSRS: Acting-Out subscale[TR] ($r = .24$, $p = .02$), such that higher self-complexity was associated with increased self-reported acting-out in response to stress. No direct relationship was found between self-complexity and self-reported violent behaviour[TR] ($r = .01$, $p = .94$), or total number of violent convictions[TR] ($r = .12$, $p = .25$). See Table 5.20 for a summary of these correlations.

5.4.7 Test of the Buffering Effect of Self-Complexity

In general, it was expected that self-complexity would mediate the impact of evaluative events on affect. To assess whether it was more appropriate to use a series of *t* tests or a series of ANCOVA analyses to test this hypothesis, the relationships of the change scores (as described in Section 5.2) to the two measures of socially desirable responding were examined. Table 5.21 provides a summary of the correlations. Only "change in self-esteem following positive events" was correlated with socially desirable responding ($r = -.29$, $p = .005$) such that higher scores on the MCMI-Desirability scale were associated with more changes in self-esteem following positive events. For the remaining change scores, there was no advantage to using ANCOVA over *t* tests because of the lack of relationship to the proposed covariates (PDS and MCMI-Y). For "change in self-esteem following positive events" the results of both the *t* test and ANCOVA analysis are presented.

Table 5.21

Correlations of change scores with PDS^{TR} and MCMI-Desirability^{REF}

	Following Positive Events (n = 92)		Following Negative Events (n = 75)	
	PDS^{TR}	MCMI-Y^{REF}	PDS^{TR}	MCMY-Y^{REF}
Change in:				
Anger	-.02	-.005	-.16	.06
Self-esteem	-.06	-.29**	.01	-.05
Positive affect	.08	-.04	-.12	.06
Negative affect	-.05	.08	-.19	.11

** $p < .01$.

5.4.7.1 Description of change scores. For the 92 participants who reported at least one positive evaluative event, four change scores were calculated (change in anger, change in self-esteem, change in positive affect and change in negative affect). Similarly, for each of the 75 participants who reported at least one negative evaluative event, four change scores were calculated (change in anger, change in self-esteem, change in positive affect and change in negative affect). Descriptive statistics of the change scores are summarized in Table 5.22. Following positive events, participants reported overall decreases in anger ($M = -5.07$, $SD = 11.01$), slight increases in self-esteem ($M = .48$, $SD = 2.15$), increases in positive affect ($M = 5.88$, $SD = 7.57$) and decreases in negative affect ($M = -4.16$, $SD = 8.32$). The converse was true for the results following negative events. Participants reported increases in anger ($M = 6.06$, $SD = 11.36$), decreases in positive affect (M = -7.31, $SD = 7.85$), and increases in negative affect ($M = 3.53$, $SD = 8.44$). Negative events appeared to have no effect on

self-esteem ($M = -.001$). These mean scores appear to lend face validity to the measures given that all change scores are in the direction that would be expected.

Table 5.22

Descriptive statistics of change scores

| | Following positive event | | | Following negative event | | |
| | ($n = 92$) | | | ($n = 75$) | | |
	M	*SD*	Range	*M*	*SD*	Range
Change in:						
Anger	-5.07	11.01	-42 to 39	6.06	11.36	-26.5 to 45
Self-esteem	0.48	2.15	-7 to7	-.001	2.43	-4.5 to10
Positive affect	5.88	7.57	-22 to25	-7.31	7.85	-35 to12
Negative affect	-4.16	8.32	-36 to14	3.53	8.44	-18 to 28

5.4.7.2 Effect of self-complexity following positive events. It was expected that following a positive evaluative experience, participants who are low in self-complexity would report greater gains in self-esteem, more extreme positive affect and greater decreases in anger than participants who are higher in self-complexity. A median split was obtained on total self-complexity and the hypothesis was tested using *t* tests to compare the mean "change scores" for participants, using the self-complexity median split as the grouping variable. Levene's test for equality of variances was not significant for any of these analyses. Therefore, homogeneity of variances was assumed for all analyses.

The results of the *t* tests did not support the hypothesis. See Table 5.23 for a summary. There was no significant difference between the high and low self-complexity groups following a positive evaluative event with regard to change in anger (t (90) = 1.40, p = .15), change in positive affect (t (90) = 1.44, p = .15), change in negative affect (t (90) = .20, p = .85), or change in self-esteem (t (90) = .90, p = .37). Controlling for socially desirable responding where "change in self-esteem following positive events" was the dependent variable in an ANCOVA, also did not lead to significant results, F (3, 88) = 1.12, p = .29.

Table 5.23

High versus low self-complexity following positive events

	SC	*M*	*t*	*p*
Change following positive event:				
Anger	Low	-3.42	1.40	.15
	High	-6.73		
Self-esteem	Low	0.68	0.90	.37
	High	0.28		
Positive affect	Low	7.02	1.44	.15
	High	4.75		
Negative affect	Low	-4.00	0.20	.85
	High	-4.33		

Note. Low self-complexity (n = 46); high self-complexity (n = 46).

5.4.7.3 Effect of self-complexity following negative events. It was expected that the converse of the hypotheses described in Section 5.4.7.2 would also be true. That is, it was expected that following a negative evaluative event, participants who are low

in self-complexity would report greater losses in self-esteem, more extreme negative affect and greater increases in anger than participants higher in self-complexity. This hypothesis was tested using t tests to compare the mean "change scores" for participants, using the self-complexity median split as the grouping variable. Levene's test for equality of variances showed unequal variances for Change in Anger (F (1, 73) = 6.05, p = .02) and for Change in Self-esteem (F (1, 73) = 5.54, p = .02), so equal variances were not assumed and degrees of freedom were adjusted using the Welch-Satterwaithe solution.

The results of the analyses did not support the hypothesis (see summary presented in Table 5.24). There was no significant difference between the high and low self-complexity groups following a negative evaluative event with regard to change in anger (t (65) = -.93, p = .36), change in positive affect (t (73) = -.52, p = .60), change in negative affect (t (73) = -.13, p = .89), or change in self-esteem (t (63) = -.82, p = .41).

5.4.7.4 Test of the Buffering Effect Using Positive Self-Complexity. A median split was obtained on positive self-complexity and t tests were used to compare the high and low positive self-complexity groups on change in anger, change in positive affect, change in negative affect and change in self-esteem following positive events and separately, following negative events. Levene's test for equality of variance was not significant so equality of variances was assumed. There was no significant difference between the high and low positive self-complexity groups for change in anger (t (90) = 1.28, p = .20), change in positive affect (t (90) = -0.04, p = .97), change in negative affect (t (90) = 0.63, p = .53), or change in self-esteem (t (90) = 0.16, p = .88) following positive events. See Table 5.25 for a summary of these analyses.

Table 5.24

High versus low self-complexity following negative events

	Self-Complexity	M	t	df	p (2-tailed)
Change following					
Negative event					
Anger	Low	4.82	-0.93	65	.36
	High	7.26			
Self-esteem	Low	-0.24	-0.82	63	.41
	High	0.22			
Positive affect	Low	-7.80	-0.52	73	.60
	High	-6.84			
Negative affect	Low	3.39	-0.13	73	.89
	High	3.66			

Note. Low self-complexity ($n = 37$); high self-complexity ($n = 38$).

Table 5.25

High versus low positive self-complexity following positive events

	Positive S.C.	M	t	df	p (2-tailed)
Change following					
Positive event	Low	-3.64	1.28	90	.20
Anger	High	-6.57			
Self-Esteem	Low	0.52	0.16	90	.88
	High	0.44			
Positive Affect	Low	5.91	0.04	90	.97
	High	5.85			
Negative Affect	Low	-3.63	0.63	90	.53
	High	-4.72			

Note. Low self-complexity ($n = 45$); high self-complexity ($n = 47$).

The median split on positive self-complexity was again used as the grouping variable in a series of *t* tests to compare the high and low positive self-complexity groups on change in anger, change in positive affect, change in negative affect and change in self-esteem following negative events. See Table 5.26 for a summary of the results. Levene's test for equality of variance was not significant for any of the analyses so equality of variances was assumed. There were no significant differences between the groups on change in anger, t (73) = -0.20, p = .84, change in negative affect, t (73) = -0.23, p = .82, or change in self-esteem, t (73) = 0.41, p = .68. It was found that participants low in positive self-complexity experienced more loss of positive affect following negative events than did participants high in positive self-complexity, t (73) = -2.50, p = .015.

Table 5.26

High versus low positive self-complexity following negative events

	Positive S.C.	*M*	*t*	*df*	*p* (2-tailed)
Change following Negative event Anger	Low High	5.80 6.32	-0.20	73	84
Self-Esteem	Low High	0.10 -0.13	0.41	73	.68
Positive Affect	**Low** **High**	**-9.47** **-5.09**	**-2.50**	**73**	**.015**
Negative Affect	Low High	3.30 3.76	-0.23	73	.82

Note. Low self-complexity (*n* = 37); high self-complexity (*n* = 38).

5.4.7.5 Test of the Buffering Effect using Negative Self-Complexity. A median split was obtained on negative self-complexity and *t*-tests were used to compare

the high and low negative self-complexity groups on change in anger, change in positive affect, change in negative affect and change in self-esteem following positive events. Levene's test was not significant for any of the analyses. There were no significant differences between the groups on change in anger, t (90) = 0.63, p = .53, change in positive affect (t (90) = 0.57, p = .57), or change in negative affect, t (90) = 0.48, p = .63. It was found that participants low in negative self-complexity experienced greater gains in self-esteem following positive events than did participants high in negative self-complexity, t (90) = 2.04, p = .045. See Table 5.27 for a summary of the results of these analyses.

Table 5.27

High versus low negative self-complexity following positive events

	Negative SC	M	t	df	p (2-tailed)
Change following Positive event Anger	Low High	-4.33 -5.79	0.63	90	.53
Self-Esteem	**Low** **High**	**0.94** **0.04**	**2.04**	**90**	**.04**
Positive Affect	Low High	6.34 5.44	0.57	90	.57
Negative Affect	Low High	-3.73 -4.58	0.48	90	.63

Note. Low self-complexity (n = 47); high self-complexity (n = 45).

The median split on negative self-complexity was again used as the grouping variable in a series of t-tests to compare the high and low negative self-complexity groups on change in anger, change in positive affect, change in negative affect and

change in self-esteem following negative events. Table 5.28 presents a summary of the results of these analyses. There were no significant differences between the groups on change in positive affect, t (73) = 0.32, p = .75, change in negative affect, t (67) = -0.45, p = .65, or change in self-esteem, t (67) = -0.02, p = .99. Contrary to expectations, it was found that participants high in negative self-complexity experienced greater increases in anger following negative events than did participants low in negative self-complexity, t (59) = -2.60, p = .012.

Table 5.28

High versus low negative self-complexity following negative events

	Negative SC	*M*	*t*	*df*	*p* (2-tailed)
Change following Negative event Anger	**Low** **High**	**2.70** **9.15**	**-2.60**	**59**[a]	**.01**
Self-Esteem	Low High	-.014 -.005	-0.02	67[a]	.99
Positive Affect	Low High	-7.01 -7.59	0.32	73	.75
Negative Affect	Low High	3.07 3.95	-0.45	67[a]	.65

Note. Low self-complexity (*n* = 37); high self-complexity (*n* = 38).
[a] Levene's test for equality of variances was significant for Change in Anger, F (1, 73) = 9.58, p = .003, for Change in Negative affect, F (1, 73) = 4.85, p = .03) and for Change in Self-Esteem, F (1, 73) = 5.75, p = .02. Correction was applied in each of these three analyses.

5.4.7.6 Summary of the Test of the Buffering Effect. In summary, there were no significant differences between the high and low total self-complexity groups with respect to changes in affect, anger or self-esteem following positive or negative events.

Positive self-complexity appeared to mediate the impact of negative events on positive affect. That is, individuals lower in (positive) self-complexity reported greater loss of "good feelings" after negative events. This is consistent with expectations. Negative self-complexity mediated the impact of positive events on self-esteem and the impact of negative events on anger. That is, individuals lower in (negative) self-complexity reported greater changes in self-esteem following positive events. This is consistent with expectations in that higher self-complexity is thus associated with more stability in self-esteem over time. The mediation of (negative) self-complexity on the impact of negative events on anger was not consistent with expectations. Individuals who were higher in negative self-complexity reported larger increases in anger than individuals lower in negative self-complexity.

Caution is warranted in making interpretations, however, given that of the 24 tests of the "buffering hypothesis" performed, only two were statistically significant in the predicted direction.

5.4.8 Regression Analyses

Six pairs of sequential multiple regression analyses were performed to examine the extent to which key variables were able to account for variance in each of the three main dependent variables (Acting-out as measured by the BSRS (AO^{TR}); self-report violent behaviour ($SRBEH^{TR}$); and official report violent behaviour ($ORBEH^{TR}$)). Each pair includes one sequential regression analysis using the NPI as the measure of narcissism and one sequential regression analysis using the MCMI-Narcissism scale as the measure of narcissism.

The first three pairs of analyses (Section 5.4.8.1) test the hypothesis that the interaction of narcissism and self-complexity predicts violent or aggression behaviour. This hypothesis was tested separately for the two measures of narcissism; the NPI and the MCMI-III Narcissism scale.

The next three pairs of regression analyses (Section 5.4.8.2) were more exploratory in nature and tested a model including a broader range of independent variables selected on the basis of their theoretical and statistical relationship to aggressive and violent behaviour. This set of variables was tested with each of the three dependent variables. This larger model was again tested separately with each of the two measures of narcissism; the NPI and the MCMI-III Narcissism scale.

For all regression analyses, the two measures of social desirability (PDS[TR] and MCMI-III Desirability scale[REF]) were entered in the first step, followed by all remaining variables in the second step. Parallel analyses using positive and negative self-complexity rather than total self-complexity are presented in Appendix V. See Table 5.29 for a complete correlation matrix of all variables considered for inclusion in the regression analyses.

Table 5.29

Correlation matrix of variables considered for use in regression

	MCY	AO^{TR}	SRBEH^{TR}	ORBEH^{TR}	NPI	MC5
			DV		NARCISSISM	
PDS^{TR}	-.21*	-.17	.09	.03	.17	.15
MCY^{REF}		.27**	.03	.08	-.22*	-.41**
AO^{TR}			.03	.08	.11	-.02
SRBEH^{TR}		.03		.19	.04	.06
ORBEH^{TR}		.07	.18		-.04	-.22*
NPI		.20	.03	-.03		.51**
MCMI-Narc		.11	.08	-.21*	.47**	
APD		.28**	.36**	.17	.35**	.29**
BPD^{TR}		.23*	.16	-.10	.28**	.28**
SC^{TR}		.24*	.01	.10	.12	-.01
BPAQ^{TR}		.52**	.22*	-.17	.37**	.25*
STAXI		.43**	.15	.04	.32**	.13
vANG^{TR}		.37**	-.06	-.07	.09	.01
SE^{REF}		.12	-.08	-.10	.06	.04
vSE^{TR}		-.06	-.08	.04	-.14	-.01
vPA		-.06	.01	-.06	-.10	-.11
vNA		.11	-.07	-.08	.01	-.04
Npi x SC^{TR}		.09	-.10	.03	.06	-.02
Mc5 x SC^{TR}		.08	-.01	.10	-.06	-.04

Note. Zero-order correlations in the upper triangle; partial correlations controlling for social desirability (MCMI-Y; PDS) in the lower triangle.

Note. N = 96 except analyses involving SRBEH, N = 92.

Note. Npixsc = interaction term for the NPI by Self-complexity interaction; Mc5xsc = interaction term for the MCMI-Narcissism scale by self-complexity interaction.

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

Table 5.29 (continued)

Correlation matrix of variables considered for use in regression

	Other Cluster B		Anger			Self-Esteem	
	APD	BPD^{TR}	BPAQ^{TR}	STAXI	vAng^{TR}	SE^{REF}	vSE^{TR}
PDS^{TR}	-.38**	-.27**	-.23*	-.30**	-.03	-.16	.07
MCY^{REF}	.32**	.60**	.47**	.44**	.24*	.69**	.07
AO^{TR}	.36**	.36**	.58**	.50**	.41**	.28**	-.04
SRBEH^{TR}	.30**	.13	.19	.12	-.05	-.04	-.07
ORBEH^{TR}	.16	-.04	-.12	.06	-.05	-.02	.05
NPI	.19	.07	.20	.15	.04	-.11	-.14
MCMI-Narc	.08	-.06	-.004	-.09	-.08	-.26*	-.03
APD		.66**	.52**	.58**	.19	.32**	-.02
BPD^{TR}	.60**		.61**	.56**	.33**	.63**	.12
SC^{TR}	.11	.15	.30**	.25*	.25*	.23*	.11
BPAQ^{TR}	.42**	.45**		.74**	.42**	.57**	.05
STAXI	.48**	.38**	.66**		.32**	.46**	.04
vANG^{TR}	.14	.24*	.37**	.26*		.27**	.04
SE^{REF}	.14	.37**	.38**	.24*	.15		.33**
vSE^{TR}	-.02	.11	.03	.03	.02	.40**	
VPA	-.07	.09	-.08	-.04	.22*	.04	.14
VNA	.06	.19	.24*	.20*	.64**	.23	.17
Npi x SC^{TR}	.01	-.05	.02	-.005	.07	-.03	.08
Mc5 x SC^{TR}	.14	.01	-.01	-.03	-.11	.03	.12

Note: Zero-order correlations in the top triangle; partial correlations controlling for social desirability (MCMI-Y; PDS) in the bottom triangle.

Note. N = 96 except analyses involving SRBEH, N = 92

Note. Npixsc = interaction term for the NPI by Self-complexity interaction; Mc5xsc = interaction term for the MCMI-Narcissism scale by Self-complexity interaction.

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

Table 5.29 (continued)

Correlation matrix of variables considered for use in regression

	SC	Affect Variability		Interaction Terms	
		vPA	vNA	NPI x SC^{TR}	MC5 x SC^{TR}
PDS^{TR}	-.16	.16	.06	-.13	-.21*
MCY^{REF}	.14	-.02	.10	.09	-.08
AO^{TR}	.28**	-.08	.12	.12	-.11
SRBEH^{TR}	.001	.02	-.06	-.11	-.03
ORBEH^{TR}	.10	-.06	-.06	.03	.08
NPI	.06	-.07	-.003	.03	-.06
MCMI-Narc	-.07	-.08	-.07	-.06	-.02
APD	.18	-.12	.06	.07	.17
BPD^{TR}	.22*	.03	.19	.03	-.005
SC^{TR}		-.003	.12	.15	-.001
BPAQ^{TR}	.25*	-.10	.24	.08	-.01
STAXI	.18	-.08	.20	.06	-.01
vANG^{TR}	.23*	.21*	.64**	.08	-.13
SE^{REF}	.18	.01	.23*	.04	-.03
vSE^{TR}	.11	.15	.18	.07	.09
vPA	.02		.42**	-.10	-.26**
vNA	.12	.41**		.02	-.23*
Npi x SC^{TR}	.13	-.08	.02		.52**
Mc5 x SC^{TR}	-.02	-.24*	-.21*	.52**	

Note: Zero-order correlations in the top triangle; partial correlations controlling for social desirability (MCMI-Y; PDS) in the bottom triangle.

Note. N = 96 except analyses involving SRBEH, N = 92.

Note. Npixsc = interaction term for the NPI by Self-complexity interaction; Mc5xsc = interaction term for the MCMI-Narcissism scale by Self-complexity interaction.

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

Analyses were performed using SPSS REGRESSION and SPSS

FREQUENCIES for evaluation of assumptions. A general rule for estimating required

sample size for multiple regression is N is greater than or equal to $50 + 8m$ (where m is

the number of independent variables) for testing the multiple correlations and N is

greater than or equal to $104 + m$ for testing individual predictors. With nine predictors,

122 cases are recommended to test the multiple correlations and 113 cases to test the

individual predictors. These general rules assume a medium-size relationship between

the independent variables and the dependent variable (Tabachnick & Fidell, 2001).

Multiple regression analyses are robust to the normality assumption; however, normality

does enhance the precision of the prediction equation (Tabachnick & Fidell, 2001).

Outliers are likely to exert too much influence on the regression solution and to affect

the precision of the estimation of the regression weights and consequently, each

regression analysis included an examination of Mahalanobis distance with the use of a p

$< .001$ criterion for detection of multivariate outliers. Additionally, scatterplots of

residuals between predicted dependent variable scores and errors of prediction were

examined for evidence of non-normality, problems with linearity, and

heteroscedasticity. Indications of outliers or violations of assumptions are discussed in

the text relating to each regression analysis.

5.4.8.1 Testing the interaction of narcissism and self-complexity. It was

predicted that while neither narcissism nor self-complexity on its own would predict

violent and aggressive behaviour, the interaction of these two constructs would be a

significant predictor. Specifically, it was hypothesized that individuals higher in

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narcissism with low self-complexity would report higher levels of acting-out and violent behaviour.

5.4.8.1.1 Acting-out as the dependent variable.

5.4.8.1.1.1 NPI as the measure of narcissism. A sequential multiple regression was performed with BSRS Acting-out^{TR} as the dependent variable and self-complexity (SC^{TR}), narcissism (NPI) and the interaction term of NPI x SC^{TR} as the independent variables. The social desirability measures (PDS^{TR} and MCMI-Desirability^{REF}) were entered in a first block and the remaining variables were entered in the second block. With the use of a $p < .001$ criterion for Mahalanobis distance ($\chi^2_{crit} =$ 27.88), no outliers among the cases were identified. Examination of the residuals and residual diagnostics indicated that assumptions of normality, linearity and homoscedacity were met. No cases had missing data, $N = 96$. See Table 5.30 for a summary of the results of this analysis.

After Step 1, with PDS^{TR} and MCMI-Desirability^{REF} in the equation, $R = .30$, F_{inc} (2,93) = 4.42, $p = .015$, indicating that 9% of the variance in the dependent variable was accounted for by the two measures of social desirability. The addition of the remaining variables in Step 2 added significantly to the prediction of Acting-Out, R^2_{inc} = .08, F_{inc} (3, 90) = 3.04, $p = .03$. The overall model was also significant, $R = .41$, F (5, 90) = 3.71, $p = .005$, accounting for a total of 17% of the variance in Acting-oOut^{TR}.

With all variables in the equation, MCMI-Desirability^{REF} and self-complexity^{TR} each accounted for a significant proportion of the variance. The variance accounted for by the NPI score was not significant, $\beta = .17$, t (95) = 1.68, $p = .10$; nor was the variance

accounted for by the interaction term (NPI x SC^{TR}) significant, $\beta = .05$, t (95) $= 0.52$, $p =$

.60.

Table 5.30

Summary of sequential regression analysis for predicting Acting-out^{TR} (SC^{TR}, NPI and interaction model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	-0.11	0.10	-.12	-1.14	.26	-.12
MCMI Desirability^{REF}	0.31	0.13	.25	2.44	.02	.24
					$R = .30$; $R^2 = .09$	
					F_{inc} (2, 93) $= 4.42$, $p = .015$	
Step 2						
PDS^{TR}	-0.10	0.10	-.10	-1.01	.31	-.11
MCMI Desirability^{REf}	0.31	0.12	.25	2.49	.02	.25
Self-Complexity (SC^{TR})	0.78	0.36	.21	2.14	.04	.22
Narcissism (NPI)	0.03	0.02	.17	1.69	.10	.18
Interaction (NPI x SC)	0.07	0.08	.09	0.92	.36	.06
					$R^2_{inc} = .08$	
					F_{inc} (3, 90) $= 3.04$, $p = .03$	
Overall Model						
					$R = .41$; $R^2 = .17$	
					F (5, 90) $= 3.71$, $p = .004$	

Note: $N = 96$

5.4.8.1.<u>1.2</u> MCMI-III as the measure of narcissism. The second

sequential regression with Acting-ou^{TR}t as the dependent variable included the MCMI-

Narcissism scale in place of the NPI. After Step 1, with PDS^{TR} and MCMI-

Desirability^{REF} in the equation, $R = .30$, F_{inc} (2, 93) = 4.42, $p = .015$, indicating that 9%

of the variance in the dependent variable was accounted for by the two measures of

social desirability. The contribution of the variables in Step 2 approached significance,

F_{inc} (3, 90) = 2.60, $p = .057$, accounting for 7% of the total variance. The overall model

was significant, $R = .40$, F (5, 90) = 3.42, $p = .007$, accounting for a total of 16% of the

variance in Acting-out^{TR}.

　　　　With all variables in the equation, MCMI-Desirability^{REF} and self-complexity

each accounted for a significant proportion of the variance. Neither the MCMI-

Narcissism scale nor the interaction term (MCMI-Narcissism x SC^{TR}) were significant

however. See Table 5.31 for a summary of these results.

Table 5.31

Summary of sequential regression analysis for predicting acting-out^{TR} (SC^{TR}, MCMI-5 and interaction model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	-0.11	0.10	-.12	-1.14	.26	-.12
MCMI Desirability^{REF}	0.31	0.13	.25	2.44	.02	.24

$$R = .30;\ R^2 = .09$$
$$F_{inc}\ (2,\ 93) = 4.42,\ p = .015$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS^{TR}	-.07	0.10	-.07	-0.68	.50	-.07
MCMI Desirability^{REF}	0.34	0.14	.28	2.55	.01	.26
Self-Complexity (SC$^{TR)}$	0.88	0.36	.24	2.44	.02	.25
Narcissism (MCMI-5)	0.02	0.02	.12	1.11	.27	.12
Interaction (MCMI-5 x SC)	0.02	0.03	.09	0.90	.37	.10

$$R^2_{inc} = .07$$
$$F_{inc}\ (3,\ 90) = 2.60,\ p = .057$$

Overall Model

$$R = .40;\ R^2 = .16$$
$$F\ (5,\ 90) = 3.42,\ p = .007$$

Note. $N = 96$

5.4.8.1.2 SR violent behaviour as the dependent variable.

5.4.8.1.2.1 NPI as the measure of narcissism. A sequential multiple regression was performed between self-reported violent behaviour (SRBEH^{TR}) as the dependent variable and self-complexity (SC^{TR}), narcissism (NPI) and the

interaction term of NPI x SC^{TR} as the independent variables. The social desirability measures (PDS^{TR} and MCMI-Desirability^{REF}) were again entered in a first block and the remaining variables were entered in the second block.

The contribution of the social desirability variables in Step 1 was not statistically significant, $R = .10$, F_{inc} (2, 89) $= 0.46$, $p = .64$. The variables added in Step 2 also did not account for a significant portion of the variance and the overall model was not statistically significant with only 2% of the variance in self-reported violent behaviour accounted for. Additionally, the beta weights of all variables were non-significant. See Table 5.32 for a summary of these results.

5.4.8.1.2.2 MCMI- Narcissism as the measure of narcissism. The NPI was replaced with the MCMI-Narcissism scale and a second regression on self-reported violent behaviour was performed. Again, the contribution of the social desirability variables in Step 1 was not statistically significant, $R = .10$, F_{inc} (2, 89) $= 0.46$, $p = .64$. The variables added in Step 2 again did not account for a significant portion of the variance and the overall model was not statistically significant with only 2% of the variance in self-reported violent behaviour being accounted for. Additionally, the beta weights of all variables were non-significant. See Table 5.33 for a summary of these results.

Table 5.32

Summary of sequential regression analysis for predicting self-reported violent behaviour (SC^{TR}, NPI and interaction model)

VARIABLE	B	SE B	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	1.04	1.16	.10	0.90	.37	.10
MCMI Desirability^{REF}	0.75	1.50	.05	0.50	.62	.05
					$R = .10; R^2 = .01$	
					F_{inc} (2, 89) = 0.46, p = .64	
Step 2						
^{TR}	0.88	1.21	.08	0.73	.47	.08
MCMI Desirability^{TR}	0.95	1.57	.07	0.60	.55	.06
Self-Complexity (SC^{TR})	0.81	4.64	.02	0.17	.86	.02
Narcissism (NPI)	0.08	0.21	.04	0.38	.70	.04
Interaction (NPI x SC^{TR})	-0.80	0.79	-.11	-1.02	.31	-.11
					$R^2_{inc} = .01$	
					F_{inc} (3, 86) = 0.38, p = .77	
Overall Model						
					$R = .15; R^2 = .02$	
					F (5, 86) = 0.41, p = .84	

Note. $N = 92$

Table 5.33

Summary of sequential regression analysis for predicting self-reported violent behaviour (SC[TR], MCMI-5 and interaction model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	1.04	1.16	.10	0.90	.37	.10
MCMI Desirability[REF]	0.75	1.50	.05	0.50	.62	.05

$R = .10;\ R^2 = .01$

$F_{inc}\ (2,\ 89) = 0.46,\ p = .64$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS[TR]	0.98	1.22	.09	0.80	.42	.09
MCMI Desirability[REF]	1.16	1.68	.08	0.69	.49	.07
Self-Complexity (SC[TR])	0.38	4.59	.01	0.08	.93	.01
Narcissism (MCMI-5)	0.18	0.26	.08	0.70	.49	.08
Interaction (MCMI-5 x SC[TR])	-.02	0.35	-.01	-0.06	.95	-.01

$R^2_{inc} = .01$

$F_{inc}\ (3,\ 86) = 0.17,\ p = .92$

Overall Model

$R = .13;\ R^2 = .02$

$F\ (5,\ 86) = 0.28,\ p = .92$

Note. $N = 92$

5.4.8.1.<u>3</u> Total number of violent convictions as the dependent variable.

5.4.8.1.<u>3</u>.1 NPI as the measure of narcissism. A sequential

multiple regression analysis was performed with total number of violent convictions

(ORBEH^{TR}) as the dependent variable and self-complexity (SC^{TR}), narcissism (NPI) and the interaction term of NPI x SC^{TR} as the independent variables. The social desirability measures (PDS^{TR} and MCMI-Desirability^{REF}) were again entered in a first block and the remaining variables were entered in the second block.

The contribution of the social desirability variables in Step 1 was not statistically significant, $R = .09$, F_{inc} (2, 93) = 0.38, $p = .68$, with less than 1% of the variance attributable to social desirability. The contribution of Step 2 and the overall model were also non-significant with the complete model accounting for 2% of the variance in the total number of violent convictions. See Table 5.34 for a summary of these results.

     5.4.8.1.<u>3.2</u> MCMI-Narcissism as the measure of narcissism. Substituting the MCMI-Narcissism scale for the NPI, increased the variance accounted for from 2% to 7% but the overall model remained non-significant, F (5, 90) = 1.37, $p = .24$. The beta weight of the narcissism measure was significant such that lower scores on MCMI-Narcissism were associated with more violent convictions, $\beta = -.22$, t (95) = -1.99, $p = .05$. See Table 5.35 for a summary of these results.

Table 5.34

Summary of sequential regression analysis for predicting total number of violent convictions (SC[TR], NPI and interaction model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	0.05	0.11	.05	0.46	.65	.05
MCMI-Desirability[REF]	0.11	0.14	.09	0.82	.41	.08

$$R = .09;\ R^2 = .01$$
$$F_{inc}\ (2,\ 93) = 0.38,\ p = .68$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS[TR]	0.07	0.11	.07	0.64	.53	.07
MCMI Desirability[REF]	0.08	0.14	.07	0.60	.55	.06
Self-Complexity (SC[TR])	0.40	0.41	.10	.10	.33	.10
Narcissism (NPI)	-0.01	0.02	-.04	-0.40	.70	-.04
Interaction (NPI x SC[TR])	0.01	0.07	.02	0.17	.86	.02

$$R^2_{inc} = .01$$
$$F_{inc}\ (3,\ 90) = 0.37,\ p = .78$$

Overall Model

$$R = .14;\ R^2 = .02$$
$$F\ (5,\ 90) = 0.37,\ p = .87$$

Note. $N = 96$

Table 5.35

Summary of sequential regression analysis for predicting total number of violent convictions (SC^{TR}, MCMI-5 and interaction model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	0.05	0.11	.05	0.46	.65	.05
MCMI Desirability^{REF}	0.11	0.14	.09	0.82	.41	.08

$$R = .09;\ R^2 = .01$$
$$F_{inc}\ (2,\ 93) = 0.38,\ p = .68$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS^{TR}	0.10	0.11	.10	0.94	.35	.10
MCMI Desirability^{REF}	0.00	0.15	.00	0.01	.99	.00
Self-Complexity (SC^{TR})	0.39	0.39	.10	1.00	.32	.10
Narcissism (MCMI-5)	-0.05	0.02	-.22	-1.99	.05	-.20
Interaction (MCMI-5 x SC^{TR})	0.03	0.03	.10	0.98	.33	.10

$$R^2_{inc} = .06$$
$$F_{inc}\ (3,\ 90) = 2.01,\ p = .12$$

Overall Model
$$R = .27;\ R^2 = .07$$
$$F\ (5, 90) = 1.37,\ p = .24$$

Note. $N = 96$

5.4.8.1.4 Summary: Interaction of narcissism and self-complexity. It was found that regardless of the measure of narcissism used (NPI or MCMI-III), the interaction between self-complexity and narcissism does not account for a significant

portion of the variance in any of the three dependent measures (Acting-out^{TR}, SRBEH^{TR} or ORBEH^{TR}).

5.4.8.2 Regression analyses: Expanded model. Given the failure to show the ability of the interaction of narcissism and self-complexity to predict violent behaviour, further sequential regression analyses were performed to examine the role of other relevant personality and affective variables. To identify the variables to be included in these regression analyses, the correlation matrix of the three dependent variables and all key independent variables was examined. This matrix was presented in Table 5.26. With the aim of including the fewest number of independent variables and also including all of the major constructs assessed, the following variables were chosen for inclusion: self-complexity (SC^{TR}), narcissism, antisocial personality (APD), borderline personality (BPD^{TR}), aggression (BPAQ^{TR}), self-esteem (SE^{REF}) and variability of negative affect (vNA). This set of variables was tested with each of the three dependent variables, again alternating the measure of narcissism.

5.4.8.2.<u>1</u> Acting-Out as the dependent variable

5.4.8.2.<u>1.1</u> NPI as the measure of narcissism. A sequential multiple regression was performed with BSRS: Acting-out^{TR} as the dependent variable and NPI, SC^{TR}, ASP, BPD^{TR}, BPAQ^{TR}, SE^{REF}, and vNA as the independent variables. The two social desirability measures (PDS^{TR} and MCMI-Y^{REF}) were entered in a first block and the remaining variables were entered in the second block. With the use of a p < .001 criterion for Mahalanobis distance (χ^2_{crit} = 27.88), no outliers among the cases were identified. Examination of the residuals indicated that assumptions of normality, linearity and homoscedacity were met. No cases had missing data, $N = 96$.

After Step 1, with PDS^{TR} and MCMI-Desirability^{REF} in the equation, $R = .30$, F_{inc} (2, 93) = 4.42, $p = .02$, indicating 9% of the variance in Acting-out^{TR} was accounted for by the measures of socially desirably responding. The addition of the remaining variables in Step 2 added significantly to the prediction of BSRS:Acting-Out^{TR}, $R^2 = .28$, F_{inc} (7, 86) = 5.37, $p < .001$. The overall model accounted for 36% of the variance in BSRS: Acting-Out^{TR}, F (9, 86) = 5.48, $p < .001$.

Of the nine independent variables included, only aggression as measured by the BPAQ^{TR} contributed significantly to the prediction of BSRS: Acting-out^{TR} with a standardized beta of .57, t (95) = 4.53, $p < .001$, such that higher scores on aggression were associated with increased self-reported acting-out in response to stress (BSRS: Acting-out^{TR}). See Table 5.36 for a summary of the results of this analysis. It is possible that similarity in item content between the BPAQ and this dependent variable accounts for the large partial correlation and obscures the impact of the remaining independent variables. Therefore, this regression and the following regression using the MCMI-Narcissism scale rather than the NPI were also performed without the BPAQ included as a dependent variable. These analyses and a brief discussion of the similarity in item content of the BPAQ and the BSRS: Acting-Out scale are presented in Appendix W.

Table 5.36

Summary of sequential regression analysis for predicting Acting-out[TR] (using NPI in the expanded model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	-0.11	0.10	-.12	-1.14	.26	-.12
MCMI Desirability[REF]	0.31	0.13	.25	2.44	.02	.24

$$R = .30;\ R^2 = .09$$
$$F_{inc}\ (2,\ 93) = 4.42,\ p = .02$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS[TR]	0.01	0.10	.01	0.08	.93	.01
MCMI Desirability[REF]	0.08	0.16	.07	0.51	.61	.06
Self-Complexity (SC[TR])	0.47	0.34	.13	1.41	.16	.15
Narcissism (NPI)	-0.01	0.02	-.03	-0.27	.79	-.03
Antisocial Personality	0.02	0.02	.09	0.74	.46	.08
Borderline Personality[TR]	-0.03	0.13	-.04	-0.24	.81	-.03
Aggression (BPAQ[TR])	0.50	0.11	.57	4.53	< .01	.44
Self-Esteem[REF]	-0.12	0.12	-.13	-0.96	.34	-.10
vNA	0.00	0.02	-.01	-0.09	.93	-.01

$$R^2_{inc} = .28$$
$$F_{inc}\ (7,\ 86) = 5.37,\ p < .001$$

Overall Model

$$R = .60;\ R^2 = .36$$
$$F\ (9,\ 86) = 5.48,\ p < .001$$

Note. $N = 96$

5.4.8.2.<u>1</u>.2 MCMI-Narcissism as the measure of narcissism. The sequential multiple regression was run again with Acting-out^{TR} as the dependent measure but substituting the MCMI-Narcissism for the NPI as a measure of narcissism. This substitution had no impact on the overall model's predictive ability. Again, 36% of the variance in Acting-out^{TR} was accounted for and the one significant beta weight was that of the measure of aggression (BPAQ^{TR}). See Table 5.37 for a summary of this analysis. See Appendix W for a description of this analysis with BPAQ excluded.

5.4.8.2.<u>2</u> Predicting self-reported violent behaviour.

5.4.8.2.<u>2</u>.1 NPI as the measure of narcissism. A sequential regression was performed with the variables described in Section 5.4.8.2 with self-reported violent behaviour (SRBEH^{TR}) as the dependent variable. As noted above, the two social desirability variables did not account for a significant portion of the variance in SRBEH^{TR} in Step 1. The addition of the eight other independent variables in Step 2 added significantly to the prediction of SRBEH^{TR}, $R^2 = .20$, F_{inc} (7, 82) = 2.89, $p = .01$. The overall model accounted for 21% of the variance in SRBEH^{TR}, F (9, 82) = 2.36, $p = .02$. See Table 5.38.

Of the nine independent variables included, antisocial personality as measured by the MCMI-III emerged as the strongest predictor of the dependent variable, $\beta = .43$, t (91) = 2.88, $p = .005$. Aggression as measured by the BPAQ^{TR} was also a relatively strong predictor with a standardized beta weight approaching significance, $\beta = .28$, t (91) = 1.90, $p = .06$. Finally, although not a significant predictor in Step 1, in the context of the other variables in Step 2, the standardized beta weight of PDS^{TR} was significant, $\beta = .29$, t (91) = 2.57, $p = .01$.

Table 5.37

Summary of sequential regression analysis for variables predicting Acting-out[TR] (using MCMI-Narcissism in the expanded model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	-0.11	0.10	-.12	-1.14	.26	-.12
MCMI Desirability[REF]	0.31	0.13	.25	2.44	.02	.24

$$R = .30;\ R^2 = .09$$
$$F_{inc}\ (2,\ 93) = 4.42,\ p = .02$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS[TR]	0.01	0.09	.01	0.07	.94	.01
MCMI Desirability[REF]	0.07	0.17	.06	0.42	.68	.04
Self-Complexity (SC[TR])	0.46	0.34	.13	1.38	.17	.15
Narcissism (MCMI-5)	-0.01	0.02	-.04	-0.35	.73	-.04
Antisocial Personality	0.02	0.02	.09	0.74	.46	.08
Borderline Personality[TR]	-0.03	0.13	-.03	-0.21	.84	-.02
Aggression (BPAQ[TR])	0.50	0.11	.57	4.63	<.001	.45
Self-Esteem (SE[REF])	-0.12	0.12	-.13	-0.96	.34	-.10
vNA	-0.00	0.02	-.01	-0.11	.92	-.01

$$R^2{}_{inc} = .28$$
$$F_{inc}\ (7,\ 86) = 5.38,\ p < .001$$

$$R = .60;\ R^2 = .36$$
$$F\ (9,\ 86) = 5.49,\ p < .001$$

Note. $N = 96$

Table 5.38

Summary of sequential regression analysis for predicting self-reported violent behaviour
(using NPI in the expanded model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	1.04	1.16	.10	0.90	.37	.10
MCMI Desirability[REF]	0.75	1.50	.05	0.50	.62	.05

$R = .10;\ R^2 = .01$

$F_{inc}\ (2,\ 89) = 0.46,\ p = .64$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS[TR]	3.12	1.22	.29	2.57	.01	.27
MCMI Desirability[REF]	0.19	2.05	.01	0.09	.93	.01
Self-Complexity (SC[TR])	-0.83	4.41	-.02	-0.19	.85	-.02
Narcissism (NPI)	-0.35	0.22	-.18	-1.59	.12	-.17
Antisocial Personality	0.82	0.29	.43	2.88	.005	.30
Borderline Personality[TR]	-0.56	1.62	-.06	-0.35	.73	-.04
Aggression (BPAQ[TR])	2.75	1.45	.28	1.90	.06	.20
Self-Esteem[REF]	-2.54	1.59	-.25	-1.60	.11	-.17
vNA	-0.31	0.30	-.11	-1.04	.30	-.11

$R^2_{inc} = .20$

$F_{inc}\ (7,\ 82) = 2.89,\ p = .01$

$R = .45;\ R^2 = .21$

$F\ (9,\ 82) = 2.36,\ p = .02$

Note. $n = 92$

5.4.8.2.2.2 MCMI-Narcissism as the measure of narcissism. Substituting the MCMI-Narcissism scale for the NPI in Step 2 of the sequential regression with self-reported violent behaviour (SRBEH^{TR}) as the dependent variable decreased the overall model's R slightly from .45 to .43, accounting for 18% rather than 21% of the variance in self-reported violent behaviour. Although decreased slightly, the beta weight for PDS^{TR} was again significant in Step 2, $\beta = .25$, $t(91) = 2.25$, $p = .03$. Antisocial personality as measured by the MCMI-III again emerged as the strongest predictor and was the only other significant independent variable, $\beta = .39$, $t(91) = 2.64$, $p = .01$. See Table 5.39 for a summary of this analysis.

Because these regression analyses include both independent and dependent variables that were significantly different between Caucasian and Aboriginal participants [antisocial personality (APD), negative affect variability (vNA) and self-reported violent behaviour (SRBEH^{TR})], the analyses were redone including a dichotomous "ethnicity" variable in Step 1. See Appendix X for a summary of the results.

Table 5.39

Summary of sequential regression analysis for variables predicting self-reported violent behaviour (using MCMI-Narcissism in the expanded model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	1.04	1.16	.10	0.90	.37	.10
MCMI Desirability^{REF}	0.75	1.50	.05	0.50	.62	.05

$$R = .10;\ R^2 = .01$$
$$F_{inc}\ (2, 89) = 0.46,\ p = .64$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS^{TR}	2.70	1.20	.25	2.25	.03	.24
MCMI Desirability^{REF}	0.49	2.19	.04	0.224	.82	.02
Self-Complexity (SC^{TR})	-1.34	4.47	-.03	-0.30	.76	-.03
Narcissism (MCMI-5)	-0.16	0.26	-.07	-0.60	.55	-.07
Antisocial Personality	0.76	0.29	.39	2.64	.01	.28
Borderline Personality^{TR}	-0.53	1.66	-.06	-0.32	.75	-.04
Aggression (BPAQ^{TR})	2.27	1.43	.23	1.58	.12	.17
Self-Esteem (SE^{REF})	-2.31	1.60	-.23	-1.44	.15	-.16
vNA	-0.29	0.30	-.10	-0.95	.35	-.10

$$R^2_{inc} = .18$$
$$F_{inc}\ (7, 82) = 2.51,\ p = .02$$

$$R = .43;\ R^2 = .18$$
$$F\ (9, 82) = 2.07,\ p = .04$$

Note. $n = 92$

5.4.8.2.3 Total number of violent convictions as the dependent variable

5.4.8.2.3.1 NPI as the measure of narcissism. With total number of convictions for violent crimes (ORBEH^{TR}) as the dependent variable, the overall model including the NPI as the measure of narcissism, approached significance, $R = .41$, $F(9, 86) = 1.92$, $p = .059$, accounting for 17% of the variance in the dependent variable. As with the prediction of self-reported violent behaviour, antisocial personality as measured by the MCMI-III was the strongest predictor, $\beta = .48$, $t(95) = 3.27$, $p = .002$. The standardized beta weight of aggression as measured by the BPAQ^{TR} was also significant, $\beta = -.30$, $t(95) = -2.10$, $p = .04$, although lower rather than higher scores on this measure were associated with greater number of violent convictions. Additionally, the standardized beta weight of MCMI-III borderline personality^{TR} approached significance, $\beta = -.32$, $t(95) = -1.84$, $p = .069$ and again, lower rather than higher scores on this measure were associated with more violent convictions. See Table 5.40.

Table 5.40

Summary of sequential regression analysis for variables predicting total number of violent convictions (using NPI in the expanded model)

VARIABLE	B	SE B	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	0.05	0.11	.05	0.46	.65	.05
MCMI Desirability^{REF}	0.11	0.14	.09	0.82	.41	.08

$$R = .09; R^2 = .01$$
$$F_{inc}(2, 93) = .38, p = .68$$

VARIABLE	B	SE B	β	t	p	$R_{partial}$
Step 2						
PDS^{TR}	0.14	0.11	.14	1.23	.22	.13
MCMI Desirability^{REF}	0.32	0.19	.25	1.67	.10	.18
Self-Complexity (SC^{TR})	0.62	0.40	.16	1.58	.12	.17
Narcissism (NPI)	-0.01	0.02	-.03	-0.24	.81	-.03
Antisocial Personality	0.09	0.03	.48	3.27	.00	.33
Borderline Personality^{TR}	-0.27	0.15	-.32	-1.84	.07	-.20
Aggression (BPAQ^{TR})	-0.28	0.13	-.30	-2.10	.04	-.22
Self-Esteem (SE^{REF})	0.01	0.15	.01	0.07	.95	.01
vNA	-0.00	0.03	-.01	-0.13	.90	-.01

$$R^2_{inc} = .16$$
$$F_{inc}(7, 86) = 2.35, p = .03$$

Overall Model

$$R = .41; R^2 = .17$$
$$F(9, 86) = 1.92, p = .059$$

Note. $N = 96$

5.4.8.2.<u>3.2</u> MCMI-Narcissism as the measure of narcissism. A sequential regression analysis with total number of violent convictions (ORBEH^{TR}) as the dependent variable and the MCMI-Narcissism scale rather than the NPI was performed. The overall model was significant, $R = .46$, $F(9, 86) = 2.52$, $p = .013$, accounting for 21% of the variance in number of violent convictions. As opposed to the NPI, the MCMI-Narcissism scale emerged as a significant predictor in this model, $\beta = -.24$, $t(95) = -2.13$, $p = .04$, but with lower scores on narcissism associated with more violent convictions. Again, antisocial personality as measured by the MCMI-III was the strongest predictor, $\beta = .50$, $t(95) = 3.57$, $p = .001$. See Table 5.41 for a summary of this analysis.

To explore possible explanations for the reversed role of the BPAQ in predicting this dependent variable compared to the other two dependent variables, intercorrelations with third variables such as age and sentence length were examined and a 2 x 2 ANOVA was performed between APD and BPAQ with total number of violent convictions as the dependent variable. See Appendix Y for the results of these analyses.

Table 5.41

Summary of sequential regression analysis for variables predicting total violent convictions (using MCMI-Narcissism in the expanded model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	0.05	0.11	.05	0.46	.65	.05
MCMI Desirability[REF]	0.11	0.14	.09	0.82	.41	.08

$$R = .09;\ R^2 = .01$$
$$F_{inc}\ (2, 93) = 0.38,\ p = .68$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS[TR]	0.17	0.11	.17	1.59	.12	.17
MCMI Desirability[REF]	0.17	0.20	.13	0.85	.40	.09
Self-Complexity (SC[TR])	0.56	0.38	.15	1.46	.15	.16
Narcissism (MCMI-5)	-0.05	0.02	-.24	-2.13	.04	-.22
Antisocial Personality	0.09	0.02	.50	3.57	.00	.36
Borderline Personality[TR]	-0.23	0.14	-.27	-1.61	.11	-.17
Aggression (BPAQ[TR])	-0.24	0.12	-.26	-1.94	.06	-.20
Self-Esteem (SE[REF])	-0.01	0.14	-.01	-0.06	.95	-.01
vNA	-0.01	0.03	-.03	-0.32	.75	-.04

$$R^2_{inc} = .20$$
$$F_{inc}\ (7, 86) = 3.12,\ p = .01$$

$$R = .46;\ R^2 = .21$$
$$F\ (9, 86) = 2.52,\ p = .01$$

Note. $N = 96$

5.4.8.2.4 Summary: Results of the expanded model. For all three dependent variables, the expanded model accounted for a significant portion of variance. Generally, the measure of aggression (BPAQ^{TR}) emerged as a particularly strong predictor across all three dependent variables, although lower rather than higher scores were associated with increases in violent behaviour. The measures of self-esteem and affect variability added little to the prediction of the dependent variables while the personality measures appeared to play a more significant role, particularly antisocial personality.

5.4.9 Summary of All Regression Analyses

The results of the six pairs of regression analyses are summarized in Table 5.42. Both pairs of regression analyses with BSRS: Acting-out^{TR} as the dependent variable resulted in a significant R with between 16% and 36% of the variance in the dependent variable accounted for by the models. There was a pattern of self-complexity emerging as a significant predictor but only when the very strong predictor, aggression (BPAQ), was excluded from the analysis. In these analyses, higher self-complexity was generally associated with an acting-out response stress response style (BSRS: Acting-out). When the aggression measure was included in the model, it became the only significant predictor with partial correlations of .44 (with the NPI model) and .45 (with the MCMI-Narcissism model).

Only the larger model accounted for a significant portion of the variance in either of the other two dependent variables (SRBEH^{TR}; ORBEH^{TR}). The beta weight of antisocial personality as measured by the MCMI-III was significant across all regressions with partial correlations ranging from .28 to .36. Both regression analyses

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with SRBEH^{TR} as the dependent variable resulted in significant beta weights for social desirability measures although which measure was significant varied depending on which narcissism scale was included. The significance of the aggression measure also varied depending on which measure of narcissism was present in the model for predicting self-reported violent behaviour (nearing significance only in the presence of the NPI).

A somewhat surprising result was found with total violent convictions as the dependent variable. With this dependent variable, lower scores on the aggression measure were associated with more violent convictions. Also, in the presence of the NPI, lower scores on borderline personality were associated with more violent convictions. Finally, when the MCMI Narcissism scale was included in the model, it emerged as a significant predictor with lower scores again being associated with more violent convictions.

Table 5.42

Summary of results of regression analyses

REGRESS TABLE #	DV	MEASURE OF NARCISSISM	MODEL R	SIG IVS	$R_{PARTIAL}$
Interaction					
1	AO^{TR}	NPI	.41**	MCMI-Y^{REF}	.27
				SC^{TR}	.23
				NPI	.20
2	AO^{TR}	MCMI	.40**	MCMI-Y^{REF}	.26
				SC^{TR}	.25
3	SRBEH^{TR}	NPI	.15		
4	SRBEH^{TR}	MCMI	.13		
5	ORBEH^{TR}	NPI	.14		
6	ORBEH^{TR}	MCMI	.27	MC5	-.20
Larger model					
7 Appendix W	AO^{TR} AO^{TR}	NPI (Without BPAQ)	.60** .46**	BPAQ^{TR}	.44
8 Appendix W	AO^{TR} AO^{TR}	MCMI (Without BPAQ)	.60** .46**	BPAQ^{TR} SC^{TR}	.45 .21
9	SRBEH^{TR}	NPI	.45*	MCMI-Y^{REF} APD	.27 .30
10	SRBEH^{TR}	MCMI	.43*	PDS^{TR} APD	.24 .28
11	ORBEH^{TR}	NPI	.41	APD BPAQ^{TR}	.33 -.22
12	ORBEH^{TR}	MCMI	.46*	MC5 APD	-.22 .36

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

5.5 Discussion

5.5.1 General Overview

The discussion of Study 2 begins with a review of the methods used to measure the main constructs because multiple and novel measurement techniques were used. It then proceeds with a review of the main findings and concludes with a discussion of the limitations of the study. A discussion of the implications of the overall results, general issues related to the current series of studies, and suggestions for future research follow in the General Discussion (Section 6).

5.5.2 Measurement of the Constructs

A number of the key constructs in this study were measured using more than one instrument (i.e., narcissism, affect, anger and aggression, and violent behaviour).

5.5.2.1 Narcissism. As in the first study, narcissism was measured using both the NPI and the MCMI-III as these two scales were thought to measure different types or aspects of narcissism. The two scales were positively correlated as expected. However, the pattern of correlations among the subscales of the NPI and the MCMI-III were somewhat different than expected. In Emmons (1987) original factor analytic study of the NPI, all factors of the NPI except S/S correlated significantly with the MCMI Narcissism scale. In the present study, the pattern of correlations was quite different with the strongest association being between the MCMI-III narcissism scale and the NPI S/S subscale. Two of the NPI factors (E/E and S/A) failed to show a significant correlation with the MCMI scale. Emmons' (1987) study employed the original rather than the third edition of the MCMI. Consequently, the strikingly

different pattern of intercorrelations may be due to differences between the two samples or to differences between the two versions of the MCMI.

5.5.2.2 Anger, aggression and affect. Although frequently used interchangeably, anger and aggression are different constructs with anger reflecting affect and aggression reflecting behaviour. Anger and aggression tend to be related but it is important to recognize that they can be independent. It is possible to be extremely angry but not aggressive and it is possible to be extremely aggressive but not angry. In the present study, the Buss-Perry Aggression Questionnaire (BPAQ) was included to measure aggression and the State-Trait Anger Expression Inventory (STAXI-2) was included to measure anger. The two measures were strongly correlated across most subscales. Two subscales of the STAXI-2 measuring control of anger were strongly negatively correlated with the BPAQ suggesting more aggressive individuals believe they have less control over their anger. This is consistent with clinical experience.

A broader measure of affect (the PANAS) was also included to provide a more general measure of both positive and negative emotions. Consistent with expectations, the negative affect subscale of the PANAS correlated with the measures of anger and hostility. It did not, however, correlate with the measures of verbal or physical aggression, showing the independence of these two constructs.

5.5.2.3 Stability of affect. Emotional reactivity was hypothesized to be related to both narcissism and low self-complexity. This construct was operationalized as the standard deviation of scores on two measures of affect (state anger and PANAS) across six administrations. The PANAS is comprised of one positive affect subscale and one negative affect subscale. Examination of the ranges and standard deviations of these

measures suggest that they were able to capture variations in participants' experience of anger, positive affect and negative affect.

However, the limitations of these measures should also be acknowledged. Although other researchers have used the standard deviation of retrospective mood ratings as a proxy measure for emotional reactivity or variability over time (e.g., Campbell et al., 1991; Emmons, 1987; Rhodewalt et al., 1998), the validity and reliability of this methodology have not been thoroughly evaluated. Some potentially problematic aspects include the dependence on participants' ability to accurately recall their emotional reactions to events that happened up to six days prior to testing, the randomness of daily events to which participants react, and the potentially different baseline levels of affect among participants. Empirically, individuals tend to report more intense emotions in retrospective than in concurrent reports (Parkinson, Briner, Reynolds & Totterdell, 1995), suggesting these measures may overestimate reactivity.

5.5.2.4 Aggressive behaviour measures. The current study included three measures of aggressive behaviour used as the dependent measures in the regression analyses. The first was a brief self-report questionnaire regarding whether one reacts to stress by acting-out. The second was a self-report questionnaire regarding one's history of violent behaviour. The third consisted of the number of violent convictions on the participant's criminal record. Surprisingly, the three measures were not correlated.

It is particularly interesting that the self-report of violent behaviour and the official record of violent behaviour were not correlated. There are several possible explanations for this outcome. One possibility is that the self-report measure was affected by socially desirable responding. However, neither dependent measure was

correlated with the measures of socially desirable responding. It is possible that the self-report was affected by another type of response bias. For example, given the context of group testing in a prison environment, some participants may have exaggerated their violent history in order to appear "tougher" to others around them. Additionally, retrospective reports of behaviour are subject to recall biases such that individual instances of frequent behaviours tend to blend into generic, knowledge-like representations that lack the time and space markers that allow for episodic recall (Bradburn, Rips, & Shevell, 1987). Accordingly, the "recall-and-count" model used here may not have accurately captured the frequency of behaviours. Rather, answers were likely based on fragmented recall and the application of inference rules to compute a frequency estimate.

Yet another explanation for the lack of concordance between the two behavioural measures of aggression is that the number of violent convictions is confounded by numerous external influences that are independent of actual violent behaviour. Many factors impact an individual's likelihood of getting caught, charged and convicted for any one act of violence. Quantity and type of undetected crime distort this measure making "number of violent convictions" a crude approximation of aggressive behaviour. Early census research from the United States indicated that approximately 72 of every 100 offenses are not reported or recorded in official statistics (Bartol & Bartol, 2005).

5.5.3 Controlling for Socially Desirable Responding

Attempting to estimate and account for the impact of socially desirably responding was a significant limitation of the first study. Consequently, the current study included a measure to specifically and independently assess the degree to which

each participant was prone to socially desirable responding (the PDS). The PDS was considered together with the embedded measure of social desirability in the MCMI-III, the Desirability subscale, and the two measures were moderately correlated.

The two measures of social desirability showed somewhat different patterns of correlations with the key variables. In general, participants with higher social desirability scores reported less anger, aggression, antisocial personality, and borderline personality and higher reports of self-esteem. Not surprisingly given the nature of narcissism, both measures of narcissism were more closely associated with self-deception rather than impression management (see Appendix Z for correlations of key variables with the PDS subscales). This suggests that individuals who score higher on narcissism are more likely to be engaging in self-deception that blatant image management.

This raises an important issue regarding correlational results when a third variable, in this case, socially desirable responding, is controlled statistically, or partialled out of the correlation. The issue of interpreting partial correlations and the relationship of self-deception and narcissism is discussed in Chapter 6.

5.5.4 Review of Hypotheses

This study proposed five general hypotheses regarding the nature of the relationships among narcissism, self-concept, affect and behaviour. Although some support was found for several of the specific hypotheses, the central hypothesis regarding self-complexity mediating the impact of evaluative events on individuals with narcissistic personality traits was not supported.

5.5.4.1 Narcissism, self-esteem and self-esteem stability. Exhibiting a grandiose sense of self-importance is a definitive aspect of narcissism. Consequently, it was expected that individuals scoring higher on narcissism would also report high self-esteem. In the present study, narcissism as measured by the MCMI-III showed the expected relationship to high self-esteem but only when socially desirably responding was not statistically controlled. Within the factors of the NPI, only the Leadership/Authority (L/A) factor showed a positive correlation with self-esteem. The L/A factor has been found in previous research to be associated with better adjustment (Emmons, 1984), therefore, possibly more positive self-appraisal as well. Alternatively, it is possible that within the penitentiary environment, individuals who see themselves as authoritative, strong leaders are able to maintain more positive self-appraisals. Within that environment, leadership may be a respected quality, awarded a degree of prestige, while the other dimensions, such as self-admiration and entitlement, are not seen in the same positive light among peers.

It was also hypothesized that individuals scoring higher in narcissism would demonstrate less stable self-esteem due to the narcissistic individual's vulnerability to ego threats and emotional reactivity to negative events. However, no direct association was found. Given the design of the study, it is not possible to determine precisely why this was the case. It is possible that narcissism is, in fact, unrelated to the stability of one's self-esteem but a number of other explanations should also be considered. For example, it is possible that the theorized fluctuations in self-esteem are of either a more gradual or shorter-lived nature than was captured by the method of measurement used in the current study. It is also possible that narcissistic individuals are unwilling to admit

to negative self-appraisals. Finally, the failure to show the expected relationship may be a consequence of the high test-retest reliability of the self-esteem measure. Future research that makes use of different sampling methods, time frames and data collection environments could provide further clarification regarding the relationship between narcissism and self-esteem stability.

5.5.4.2 Narcissism and anger. Numerous researchers have explored the relationship between narcissism and anger as well as aggression (see Section 2.2.7) with somewhat inconsistent results (i.e., Bushman & Baumeister, 1998; McCann & Biaggio, 1989; Papps & O'Carroll, 1998). This is likely due to the multidimensionality of the three constructs and to the contribution of related third variables such as context and self-esteem.

In the present study, although higher levels of narcissism were generally associated with more self-reported anger and aggression, results differed somewhat across the two measures of narcissism and across the various aspects of anger and aggression. Generally, the NPI showed a stronger and more consistent association than did the MCMI narcissism scale. Of the NPI factors, only the self-absorption/self-admiration (S/A) factor was unrelated to anger and aggression. This is contrary to the findings of Emmons (1987) and again suggests that the current sample of offenders differs significantly from his sample of undergraduates. One relatively consistent finding from previous research is the association between the exploitativeness/entitlement (E/E) factor of the NPI and various measures of anger and aggression. The current study replicated this previous finding. The NPI-E/E factor

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showed the strongest and most consistent association with various measures of anger including experience, expression, and lack of anger control.

The MCMI narcissism scale appeared to be more influenced by socially desirable responding than the NPI. Significant correlations with anger and aggression were found only after controlling for socially desirable responding. The MCMI narcissism scale was associated specifically with hostility and the expression of anger rather than with anger in general. It appears that individuals scoring higher on this measure of more pathological narcissism reported a hostile and aggressive interpersonal style without reporting the experience of anger emotionally.

5.5.4.3 Self-esteem and aggressive/violent behaviour. Considerable effort has been expended in efforts to clarify the relationship of one's self-evaluation to one's behaviour (i.e., Baumeister et al., 1993; Kernis, et al., 1993; Ford & Linney, 1995). It is often assumed that low self-esteem leads to violence although this assumption is not consistently supported by the scientific literature. The inconsistent results found in previous research may have resulted in part from the multidimensional nature of self-esteem and from variance in methods used to measure violence and aggression. However, it also suggests that self-esteem may not be relevant to violent behaviour.

In the current study, the global measure of self-esteem showed a significant negative correlation with self-report measures of anger, aggression and acting-out but not with self-reports or official reports of violent offending. The association between low self-esteem and acting-out was not present when controlling for socially desirable responding. This lends some support to the interpretation that the zero-order significant

correlation may be simply a result of response style (that is, that those who are willing to admit to low self-esteem are also more willing to admit to acting-out behaviour).

The association between low self-esteem and anger remained significant after controlling for socially desirable responding but was reduced in strength. As with the first study, interpretation of this relationship is difficult given the self-report and correlational nature of the study. It is possible that individuals who experience more anger suffer lower self-esteem just as it is possible that individuals with low self-esteem experience more anger. The underlying nature and causal direction of this relationship should be explored in future research.

5.5.4.4 Test of the buffering effect. It has been suggested that the structure of self-knowledge (operationalized in this study as "self-complexity") may play an important role in mediating individuals' reactions to stress and failure. Theoretically, when an individual possesses a relatively complex and well-differentiated understanding of their personal traits and attributes, they are less likely to be emotionally reactive. Complex self-representations are thought to "buffer" the effects of negative events such that they enable an individual to limit the impact of events and maintain esteem in other areas of the self. In a series of studies, Linville (1984; 1987) demonstrated that individuals lower in self-complexity experienced greater swings in affect and self-appraisal following a success or failure experience.

The present study attempted to replicate this finding by examining whether participants higher in self-complexity experienced more emotional stability following positive or negative events during the course of data collection than participants lower in self-complexity. No significant difference between high and low self-complexity groups

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(based on a median split) was found with regard to changes in negative or positive affect, anger or self-esteem following either positive or negative events. In other words, there was a failure to demonstrate the buffering effect of self-complexity.

There are a number of possible methodological explanations for this null result. An important consideration is whether six weeks in a relatively controlled prison environment was a sufficient period of time and an appropriate context in which to detect the proposed buffering effect. Also, as discussed above, retrospective mood ratings can be problematic. Empirically, individuals report more intense emotions in retrospective than in concurrent reports (Parkinson et al., 1995).

Self-complexity, in the current sample of offenders, showed some interesting and unexpected relationships to other variables. Specifically, higher self-complexity was associated with higher levels of negative affect including anger, more variability in anger scores and an acting-out style of responding to stress. These results are contrary to expectations of self-complexity as a protective factor in mental health. Future research may explore whether these associations are replicable in a different population or reflect unique processes present in incarcerated individuals. It is possible that individuals who experience more variability in their daily environment also experience both increased self-complexity and increased levels of negative affect. To illustrate, consider the offender who receives no visitors, engages in no institutional programming and interacts little with other inmates. It is possible that this offender experiences little negative affect but also has little chance to develop more self-complexity. Alternatively, consider the offender who actively participates in a variety of programs and frequently

receives visitors. This individual is conceivably exposed to many more opportunities to both develop increasing self-complexity and to experience negative affect.

The complexity of positive self-knowledge and negative self-knowledge were also examined in a series of exploratory analyses. Previous research has provided some preliminary support to the supposition that positive and negative self-complexity may have different benefits with regard to coping and mental health. Specifically, positive self-complexity has been found to better predict successful coping with trauma (Morgan & Janoff-Bulman, 1994) while negative self-complexity has been found to increase vulnerability to depression (Woolfolk et al., 1995). In the current study, several differences were noted among total, positive and negative self-complexity with regard to the buffering effect. It was found that negative self-complexity was more strongly associated with negative affect and anger than was positive self-complexity but there was no difference in the associations with acting-out.

When positive and negative self-complexity were considered separately, some support was found for the hypothesized buffering effect and the results were relatively consistent with previous research. Generally, higher positive self-complexity was associated with better coping while higher negative self-complexity was associated with less desirable reactions to events (i.e., specifically, positive self-complexity mediated the loss of positive feelings after a negative event while negative self-complexity limited gains in self-esteem after a positive event and was related to more anger following a negative event).

This finding, along with previous research with similar results, has significant implications for Linville's (1984) theory regarding self-complexity. It suggests that the

structure of self-knowledge is not independent of the evaluation of self as originally assumed. Instead, it suggests that positive and negative self-concept may be separable constructs and may play different roles with regard to coping.

This finding also has clinical implications. It suggests that increasing positive self-complexity may help individuals to maintain positive feelings during times of stress and thus be more likely to cope effectively. Also, it suggests that decreasing negative self-complexity may help individuals to benefit more from positive events and feel less angry after negative events. The extent to which self-complexity can be increased or decreased through conscious effort or through therapeutic intervention has yet to be investigated empirically. Further research is needed both to replicate the current findings and to examine the impact of intervention on self-complexity.

5.5.4.5 Test of the interaction of narcissism and self-complexity. Based on the intersection of the theory of threatened egotism in narcissism and the buffering effect of self-complexity, it was expected that individuals high in narcissism and low in self-complexity would report the highest levels of acting-out and violent behaviour. However, in the present study, the interaction of narcissism and self-complexity was not significant, indicating that the relationship between narcissism and aggression was not affected differentially by self-complexity. This was true regardless of which measure of narcissism and which measure of self-complexity was used in the model. Given the consistency of this finding across all measures, it appears that narcissism and self-complexity do not, in fact, interact to affect aggressive behaviour in an offender population. However, the limitations of design and measurement should be recognized

and the alternative explanation, that the effect exists but this particular design and these particular measures were unable to detect it, should also be considered.

5.5.4.6 A larger model for predicting violent behaviour. A series of regression analyses were performed to explore the relative contributions of key variables to each of the three dependent variables (BSRS: Acting-out; self-report of violent behaviour; and total violent convictions). The independent variables included self-complexity, narcissism, antisocial and borderline personality, aggression, self-esteem, and variability of negative affect. Each of these variables was chosen because of a theoretical relationship to violent behaviour. The model was able to account for a significant proportion of variance in each of the dependent variables regardless of which measure of narcissism was included or which measure of self-complexity was included.

In none of the analyses did borderline personality, self-esteem or variability of negative affect account for a significant proportion of the variance in the dependent variables. The significance of the remaining four predictor variables varied somewhat across the three dependent variables. The measure of aggression (BPAQ) emerged as a strong predictor and showed a positive association with acting-out but a negative association with violent convictions. The association with acting-out likely reflects the similarity of the two constructs. For example, the Acting-out scale asks if the respondent may "hit someone" when under stress and the BPAQ asks whether the respondent may "hit another person" given enough provocation. The explanation of the negative association between aggression (BPAQ) and total violent convictions was less obvious. It is possible that this relationship is the result of a confounding third variable such as age. In post-hoc analyses, it was found that the BPAQ was negatively correlated

with age (Appendix Y). It is generally well accepted that more violence is perpetrated by young people (Bartol & Bartol, 2005), so the association of aggression and youth is not surprising. However, the cumulative life history of violence measured by total violent convictions can only increase with age, independent of changes in level of aggression. So, older individuals can be expected to report lower levels of aggression but larger numbers of convictions. This negative relationship between aggression and violent convictions should be clarified in future research.

Antisocial personality emerged as a significant predictor of self-reported violent behaviour and of total violent convictions, but was unrelated to the Acting-out scale. This is generally consistent with expectations. The glibness, superficiality and lack of remorse associated with antisocial personality are conducive to openly reporting and perhaps over-reporting past violent behaviour. Also, previous research has established the relationship between antisocial personality and antisocial behaviour, including physical violence (APA, 1994; Douglas, Vincent & Edens, 2006). It is possible that these same antisocial personality traits make it less likely that one will admit to reacting to stress in aggressive ways (as per the Acting-out scale).

The final two predictor variables, self-complexity and narcissism, presented somewhat more inconsistent results across the three dependent variables. Self-complexity had a significant positive association with only the Acting-out scale and only if the measure of aggression was omitted from the model. It is not clear why individuals reporting higher self-complexity would also report an acting-out style of responding to stress. Coping style may be a confounding variable. More specifically, previous research on self-complexity has shown that self-complexity can mitigate against the

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development of depression in response to traumatic life events. Depression, in turn, is associated with an internalizing pattern of coping. Further research would be required to determine if self-complexity and internalization / externalization are associated.

Alternatively, the explanation may lie in factors specific to the population that was the focus of this study. For example, the admission of acting-out and aggression (self-complexity was also positively associated with the BPAQ) may be less threatening to offenders with higher self-complexity because they are able to compartmentalize it as an aspect of just one part of themselves and, at the same time, be aware of other, non-aggressive parts of themselves.

Finally, with regard to narcissism, the MCMI narcissism scale, but not the NPI, was a significant predictor of a dependent variable, total violent convictions. Interestingly, the relationship was such that higher narcissism was associated with fewer violent convictions. The reason for the direction of this association was not clear from the current study and further research is needed for clarification. One possibility is that among offenders, narcissists are more likely to become involved in non-violent rather than violent crime. The role of an "entitled con-man" is potentially more congruent with the narcissistic personality than the role of "street thug". It is also important to recall that the measure "total violent convictions" is simply a tally and the type of crime is not taken into consideration. Therefore, individuals convicted of several relatively minor assaults would score higher than an individual convicted of murder.

In summary, constructs related to violent behaviour in the current study included aggression, antisocial personality, and in certain circumstances, self-complexity and narcissism. The latter two constructs were the focus of the current study. An interaction

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was expected such that high narcissism and low self-complexity would be associated with the highest levels of violence. Instead, the two constructs were found not to interact and each was associated with the dependent measure in a direction opposite to expectations. These results challenge pre-existing assumptions about narcissism and self-complexity and suggest that these constructs may function in unique ways within a population of incarcerated offenders as opposed to university or community samples.

5.5.5 Limitations and Implications of Study 2

Several limitations of the current study have been noted in the preceding section. Additionally, this second study has many of the limitations present in Study 1 and described in Section 9.3. Specifically, the cross-sectional (i.e., correlational) nature of the data prevents interpretations of causality, self-report measures can have questionable validity, and the relatively small sample size limits statistical power to detect small effects. Also, it is not clear the degree to which the current results are generalizable to the broader population beyond the current sample of medium security, federal offenders, primarily from Western Canada. This is particularly of concern given the paucity of research on the impact of culture on self-complexity. Finally, interpretation of results is limited by a lack of consensus regarding several of the key constructs (i.e., narcissism, self-esteem, and "stability"). This issue is discussed in the General Discussion in Section 6.2.2.

CHAPTER 6
GENERAL DISCUSSION

The aim of this series of studies was to investigate whether self-complexity mediates reactivity to ego threat such that individuals low in self-complexity experience greater shifts in self-esteem and affect and subsequently are more likely to act out aggressively. It was expected that this pattern of emotional reactivity would be found primarily amongst individuals who scored higher on measures of narcissism with the assumption that a definitive aspect of narcissism is high but unstable self-esteem. Generally, the results of these studies showed no support for some hypotheses and partial support for others. More specifically, narcissism was not found to be associated with particularly high, unstable self-esteem and self-complexity was not found to influence reaction to events, with or without the presence of narcissism. On the other hand, narcissism was associated with aggression and anger as predicted and self-complexity, when examined in its component parts (i.e., positive and negative self-complexity) was somewhat related to coping with daily stressors (as per the hypothesized buffering effect).

This final, general discussion begins with a brief summary and comparison of the results of Study1 and Study 2. Next, a critical analysis of the studies' methodology, operationalization and measurement of constructs and interpretation of statistical analyses is presented. Finally, the implications of the findings and suggestions for future research are reviewed.

6.1 Comparison of Study 1 and Study 2

Both Study 1 and Study 2 investigated relationships among narcissism, self-esteem, self-complexity and behaviour. Although the methodology of Study 2 was different in several ways from the methodology of Study 1, three hypotheses and several correlational analyses were common to both. This section provides a summary of results that were comparable across the two studies.

The first shared hypothesis was the expectation that narcissism would be associated with high but unstable self-esteem. Both studies found that self-esteem was associated with higher scores on one but not the other measure of narcissism. The design of Study 2 allowed further investigation and showed that, when socially desirable responding was controlled for statistically, this association was reduced to well below a statistically significant level. It appears that individuals who wished to present themselves in a positive light reported both high self-esteem and high levels of narcissism. Both studies found no relationship between self-esteem stability and narcissism.

The second shared hypothesis was that there would be no direct relationship between self-esteem and violent behaviour. In Study 1, the measure of violent behaviour was a brief questionnaire regarding acting-out while under stress. Study 2 also used this measure but added a self-report of violent behaviour and a tally of violent convictions as additional measures. Both studies found an association between low self-esteem and acting-out while under stress. However, in Study 2, when socially desirable responding was controlled for statistically, the association was reduced to below statistical significance. One possible interpretation is that individuals who responded in

a socially desirable manner reported high self-esteem and were unwilling to admit to acting-out behaviours.

The third shared hypothesis was that self-complexity would interact with narcissism to mediate the impact of daily events with low self-complexity and high narcissism related to more change in affect. In Study 1 this hypothesis was tested indirectly with variability of self-esteem over a two week period serving as a proxy measure for change in affect. In Study 2 it was tested more directly by including measures of affect and by tracking participants' experiences over a six week period. Because of the differences in measures and methodology, the results are not as directly comparable as they were with the first two shared hypotheses. Generally, however, neither study found support for an interaction between self-complexity and narcissism.

The results of correlational analyses involving self-complexity and narcissism may be compared across the two studies. In Study 1, self-complexity was correlated with only narcissism as measured by the NPI and antisocial personality (APD) as measured by the MCMI-III. Individuals higher in self-complexity scored higher on narcissism and APD. In Study 2, this result was not replicated. In Study 2, self-complexity was found to be associated with aggression, acting-out and the variability of anger. This is contrary to expectation given the prior association of self-complexity with better coping in the research literature.

In both studies, the two measures of narcissism were strongly correlated ($r = .54$; $r = .51$ respectively). The mean NPI score in the second study was significantly lower than the mean NPI score in the first study ($t (95) = -4.62, p < .001$). The mean MCMI-

III narcissism scores were not significantly different between the studies (t (95) = 1.10, p = .27).

Narcissism showed a relatively consistent association with both borderline personality (BPD) and antisocial personality (APD). Overlap among these three personality styles, all included in Cluster B of the DSM-IV (APA, 1994), is generally well accepted (Millon, 1981; Kraus & Reynolds, 2001). Shared features among the Cluster B personalities include deficiencies in empathy and a "dramatic, emotional or erratic" style. When socially desirable responding was controlled statistically in Study 2, narcissism also showed a moderate to strong association with aggression. Post hoc analyses of the relationship of narcissism to the two subscales of the PDS provided some insight into the relationship of narcissism to socially desirable responding (see Appendix N). Both measures of narcissism, although unrelated to the PDS total score, were found to be associated with the Self-Deceptive Enhancement subscale but not the Impression Management subscale. This suggests that the response bias present in narcissism may reflect a process of self-deception rather than a conscious attempt to deceive others. This also suggests an interesting distinction between narcissism and antisocial personality given that higher antisocial scores were associated with lower scores on both subscales of the PDS.

6.2 Critical Analysis

6.2.1 Methodology and Interpretation of Statistical Analyses

There are a number of limitations inherent in the design of the current study and certain cautions are required when attempting to interpret the statistical analyses provided. First, the cross-sectional (i.e., correlational) nature of the study prevents

making interpretations regarding causality. Although, theoretically, one variable may be causally related to another variable, it is important to consider that the opposite may also be true or that they are not causally related at all. Second, the current study included many uncontrolled variables, the impact of which is unknown. For example, a significant component of the study was measuring individuals' responses to stressful events. In the current design, these events were not standardized. It is therefore not possible to conclude that the reactions to events that transpired during the course of the current study were due to individual personality factors as predicted or to other kinds of situational or institutional factors. Finally, many of the statistical analyses in the current study involved partial correlations in which the effects of socially desirable responding were controlled statistically. Lynam, Hoyle, & Newman, (2006) caution simply, "Partialling changes variables" (pg. 329) and suggest that, once the variance shared with other independent variables is removed, it is difficult to know what construct an independent variable represents. They offer three factors to consider when attempting to interpret partial correlations: degree of overlap, reliability, and internal consistency.

When there is less overlap between the independent variables, there is less loss when partialling. Reliability is another important issue when partialling. The residualized score will be less reliable than the raw score because "random error and systematic error not shared by the variables involved in partialling remains in the residualized score and now comprises a larger part of the variable" (Lynam, et al., pg. 329). With regard to internal consistency, heterogeneous measures run the risk of greater dissimilarity following partialling than more homogeneous measures. This is because the partialling process may remove variance that is specifically associated with

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some elements of the measures but not others." In the absence of these problems, interpretation of the partial relations is relatively straightforward. When there is a significant discrepancy between the raw and residual variables (under the undesirable circumstances above), a decision must be made as to which construct, the original or residualized, the conclusions are meant to apply. In the current study, the issue of interpretation of partials is most relevant to the interpretation of narcissism once the variance attributable to social desirability is removed. This is particularly so when one considers that narcissism was more closely related to self-deception than impression management and when one considers the growing research to suggest that narcissism scales may be measuring an attempt to present oneself as normal and healthy (Craig, 2005).

6.2.2 Operationalization and Measurement of Constructs

One of the many challenges inherent in social sciences research is the accurate operationalization and measurement of constructs that are abstract and intangible. Although the focus of considerable attention, constructs such as narcissism as a personality style, self-esteem, and even violent behaviour tend to lack clear, consistent definitions across the literature. There is also often no consensus within the clinical and academic literature regarding measurement of these challenging constructs. Although definitions and rationale for the chosen measurement techniques in the present study were presented in the introduction, further discussion of these issues is now presented in light of the results.

6.2.2.1 Violent behaviour. Several "outcome" measures were used in an attempt to measure both an individual's tendency to react violently (i.e., the BSRS) and his

actual past violent behaviour (both self-report and official records). Although the

definition of this construct was relatively straightforward, the measurement techniques

presented some challenges with regard to reliability and validity. Specifically, when

asking individuals to report what they may perceive as undesirable behaviour, one must

be aware of the possibility that what people say they do differs significantly from what

they actually do. When incarcerated offenders are asked to report on their previous

violent behaviour, various factors likely influence their responses. These factors include

fears of further punishment, fallibility of memory, feelings of shame or embarrassment,

and personality style. In general, research on retrospective behavioural reports indicates

that this type of measurement strategy tends to be highly fallible and strongly affected

by the specifics of the research instrument used (Schwartz, 1999). Research has also

shown that retrospective reports tend to be worse regarding mundane and frequent

behaviours (Bradburn et al., 1987). This may be in the current instruments' favor as the

reported behaviours (i.e., sexual assault, weapon use, murder, etc.) were unlikely to be

"mundane and frequent".

The official record of violent behaviour (i.e., number of violent convictions) is

likely to be highly reliable and not subject to the reporting biases of the self-report.

However, it is subject to other challenges to validity as a general measure of violent

behavior. Again, as noted in Section 5.5.2.4, an individual's criminal record is only a

rough estimate of his or her actual behaviour since numerous crimes do not lead to

criminal charges or convictions (Bartol & Bartol, 2005).

6.2.2.2 Self-esteem and stability measures. The next set of constructs of

concern with regard to operationalization and measurement is "self-esteem and self-

esteem stability". In the present study, the average score on the CFSEI-II across several administrations was used to measure self-esteem and the standard deviation of these scores was used to represent stability. The validity of the CFSEI-II as a measure of self-esteem is considered adequate given its consistent correlation with other measures of self-esteem (Battle, 1992). This does not, however, address the more general issue of defining the construct in a satisfactory manner. As noted in the introduction, little consensus exists regarding either the global construct of self-esteem or its component parts. The boundaries between self-esteem and other constructs such as affect, coping, relationship quality and competence are problematic and frequently renegotiated in the literature. Brown and Marshall (2001), for example, suggest that self-esteem is more than an individual's evaluation of self. They suggest that it incorporates a method of coping with failure since high self-esteem individuals possess the ability to respond to failure in ways that maintain positive feelings. This illustrates the difficulty of empirically separating the self-evaluation from the effects of that self-evaluation.

With regard to reliability, the high test-retest reliability of the CFSEI-2 (Battle, 1992) is good with regard to measuring self-esteem but may be a liability with regard to assessing stability. While initially, it was proposed that the high test-retest reliability would enable identification of valid fluctuations, it may have functioned instead as an artificial stabilizer. That is, participants may have tended to respond the same way each time, regardless of actual experience. Also, the reliability of the stability measure (both of self-esteem and of the other affect measures) is unknown currently. Study 1 used a design of seven administrations over two weeks while Study 2 used a design of six administrations over six weeks. Little research exists regarding the appropriateness of

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these time frames for the measurement of the stability of one's self-esteem. It is not known whether the stability of these constructs varies over the course of hours, days, months, years, or all of the above. It is possible that variability (or instability) over the course of hours affects the individual negatively while variability over the course of years has no detrimental effect. More research is needed to explore these issues.

6.2.2.3 Narcissism. In spite of the longstanding status of narcissistic personality disorder as a diagnosis in the DSM-IV, there is ongoing debate about the definition, the possibility of sub-types, and even about the validity of the label itself. Accurately identifying individuals who are emotionally reactive to criticism was very important to this study. Although, clinically, this is an accepted aspect of narcissism, neither of the measures employed in the current studies specifically included the experience of negative affect as part of narcissism (Emmons, 1987; DiGuiseppe, Robin, Szeszko, & Primavera, 1995).

The conceptualization of narcissism in this study is consistent with the theories of Kernberg and Kohut but not of Millon. While both Kernberg and Kohut, and much of the clinical literature (Bushman & Baumeister, 1998; Heiserman & Cook, 1998; Kernis & Sun, 1994; Stucke & Sporer, 2002; Westen, 1994, etc.), include emotional vulnerability and reactivity as critical to narcissism, Millon (1981) argues that "true narcissists" are characterized by self-absorption and admiration that is not defensive. Both conceptualizations include egocentrism, self-absorption, and entitlement, but Millon does not include significant negative affect as critical to the disorder. Negative reaction to criticism was a diagnostic criterion for NPD in the DSM-III but was removed from the DSM-IV list of criteria (APA, 1994). Consequently, Millon's

conceptualization and measurement of narcissism is consistent with diagnostic criteria but inconsistent with the clinical view of narcissists as defensive.

DiGiuseppe et al., (1995), in a cluster analysis of the MCMI-II, found at least three distinct clusters of NPD, two of which did not include the experience of negative affect. One cluster, labeled the "compensating narcissist" by DiGiuseppe et al., (1995), appeared to represent the type of narcissism of interest in the present study. However, individuals consistent with this conceptualization (i.e. those who experience emotional reactivity and vulnerability) were in the minority of those identified as having NPD. The implication for the current study is that the individuals identified by the MCMI-III as scoring higher on narcissism likely represented a heterogeneous group of individuals of which only a small portion were of the "subtype" of interest.

Craig (2005) suggested caution when interpreting the narcissism scale of the MCMI-III given increasing evidence that elevated scores on this scale may suggest *either* traits associated with NPD or a healthy, confident personality style. The scale correlates moderately with other measures of narcissism but also correlates with measures of mental health and positive adjustment. It has been found to correlate positively with items dealing with extroverted traits and behaviours and negatively with items pertaining to general maladjustment with isolation and withdrawal (Choca, 2004; Craig & Bivens, 1998). One treatment outcome study (Piersma & Boes, 1997) found an increase on the MCMI-III narcissism scale seven to ten days following a psychiatric admission and suggest the increase on the scale reflected an increase in stability and healthy functioning. Also, Retzlaff et al., (2002) found that MCMI-III narcissism elevations predicted the need for less mental health service among 10,000 Colorado

inmates. In conclusion, there is increasing evidence that this scale measures normal, non-clinical traits associated with a narcissistic personality style. It correlates positively with measures of mental health and life satisfaction and correlates negatively with measures of psychopathology (Craig, 2005).

This association of the MCMI scale with healthy functioning and the absence of negative affect for both scales may, in part, explain the failure to demonstrate either the phenomenon of threatened egotism or the buffering effect of self-complexity with narcissistic individuals in the current studies. The association also challenges the assumption that vulnerability to ego threat is an aspect of narcissism at all. Studies on diagnoses of NPD show a substantial lack of reliability (Gunderson, Ronningstam & Smith, 1991) and factors related to grandiosity, but not vulnerability to criticism, were shown to best differentiate NPD from other disorders (Gunderson et al., 1991).

    6.2.2.4 Self-complexity. The final construct to be discussed in terms of its operationalization, reliability and validity is self-complexity. Like self-esteem, the structure of self-knowledge is generally a poorly defined construct and the subject of considerable debate (Rafaeli-Mor et al., 1999; Rafaeli-Mor & Steinberg, 2002, for example).   In the current study, self-complexity was operationalized following the procedure first used by Linville (1985). That is, participants completed a card-sort of 61 descriptors of themselves and a single score was calculated based on their performance.

This operational measure was chosen in the hope that it would facilitate the separation of structure and evaluation such that each could be examined separately. However, exploratory analyses found differential effects of self-complexity based on the valence of words (i.e., positive versus negative self-complexity). Findings of different

effects of positive and negative self-complexity are a serious challenge to the measure's internal consistency and validity. The findings in the current study add to a growing body of literature suggesting that Linville's original theory of self-complexity may be incorrect (Woolfolk et al., 1995; Morgan & Janoff-Bulman, 1994). While the original theory posits that structure is completely independent of valence, the current finding, along with a growing body of research, disputes this assertion. A model of self-knowledge that acknowledges the interaction of structure and valence may prove more functional.

According to Linville's original theory of self-complexity, changing the words from her original word list to the word list developed in the pilot study should, theoretically, have had little or no impact on the measure. However, results using the altered and the original lists were not compared in a within-subjects design and consequently, it is not possible to state definitively that the results of the current study and prior results obtained using the original measure are directly comparable.

Finally, although the reduction of results of the card sort to a single score facilitates quantitative statistical analyses, significant qualitative data were lost. For example, noting the categories participants chose as self-aspects provided some insight into their self-definitions and raised a number of clinically relevant questions. A substantial proportion of the card sorts included categories that differentiated "good self" from "bad self". That is, participants used labels for self-aspects such as "past" (composed primarily of negatively traits), "present" (composed primarily of positive traits), and "future" (composed of primarily positive traits); or "substance abuser" (composed of negative traits) and "real self" (composed of positive traits). Presumably,

treatment targets include negative traits (i.e., controlling; aggressive; uncaring). The current results suggest that negative traits tend to be compartmentalized into self-aspects that the individual perceives as either not truly a part of him or as part of his past. One must wonder to what degree an individual perceives interventions targeting negative traits as personally relevant if he perceives negative traits only as part of his past self.

6.3 Implications and Suggestions for Future Research

The current studies, while offering few definitive answers, did raise a number of interesting issues and questions to be pursued in future research. The failure to show the process of threatened egotism raised the question of whether there are identifiable subtypes of narcissism and whether these subtypes differ in their proclivity to experience negative affect. Also, the failure to find any association between narcissism and violent behaviour suggests research is needed to clarify what kinds of offenses narcissistic individuals are more likely to commit. The current finding may reflect that individuals scoring higher on narcissism are less likely to be impulsive "hands-on" criminals and more likely to be "at arms length" manipulative con men. This again speaks to the potential multidimensional nature of narcissism and the possibility of sub-types of narcissism (i.e., lack of negative affect as per Millon (1982) versus fragile inflated ego as per Kernberg (1976) and Kohut (1976)).

Further research could also aid in clarifying the construct of self-complexity generally and the measurement of self-complexity, more specifically. The temporal stability, both of the construct and of the measure, requires confirmatory research. Longitudinal studies of responses to therapeutic interventions and the impact of changes in self-complexity could provide valuable clinical directions. The impact of the content

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of the word lists used in card sorts also requires additional research in order to determine to what extent results are comparable across studies. Future research should incorporate the growing evidence that self-complexity is not a unitary construct but rather seems to have at least two components (i.e., positive and negative complexity).

Lastly, the measures of self-esteem stability and affect stability used in the current study have little to no research base regarding reliability and validity. Future research that examines the impact of differing time frames, methods of measurement, and intervals between measurements would be of value.

6.4 General Conclusion

Clear support for the buffering effect of self-complexity and for the effect of high but unstable self-esteem in narcissists' reactions to daily events was not provided by the current studies. Rather, the results helped crystallize a number of interesting questions regarding the processes under investigation. Are there subtypes of narcissism such that only a subset of narcissistic individuals is vulnerable to threatened egotism? Is there a level of narcissism that is adaptive and healthy? If so, what is that level and how might we differentiate between healthy and unhealthy narcissism? Is narcissism, and other Cluster B personality disorders, generally more detrimental to those around the patient than to the patient himself? If so, perhaps the most efficient way of tracking reactions to failure or negative evaluation must involve third party observers rather than rely on the narcissistic individual to self-report. This is particularly likely given the correlation of narcissism with self-deception rather than impression management found in the current studies.

Many questions were also raised regarding self-complexity. What is the implication of the differential effects of positive and negative complexity found in the second study? Is self-complexity changeable? If so, can it be changed through direct intervention and to what extent? It appears that the self-complexity of offenders is quantitatively different (i.e., less complex) than the other populations studied to date. Is it qualitatively different as well? Can the tendency of offenders to compartmentalize their negative traits into aspects of themselves that they perceive as temporally or physically remote be a useful insight for those offering treatment?

Previous published research supporting the buffering effect of self-complexity has done so in the context of its ability to mitigate against the development of depression in response to stress or trauma (Morgan & Janoff-Bulman, 1994). Perhaps the same processes do not apply to mitigating against aggressive and violent reactions to negative events. There are fundamental differences between the development of depression and the acting-out of anger and aggression. These differences go well beyond the level of the individual and involve personal history, experiences with socialization, and cultural or sub-cultural norms.

Although the current study produced more questions than answers, the complex and interesting constructs and processes addressed in the current study will undoubtedly continue to draw interested researchers. As long as violent crime continues to impact our society, the efforts to understand its perpetrators will go on.

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LIST OF APPENDICES

PILOT STUDY APPENDICES

STUDY 1 APPENDICES

STUDY 2 APPENDICES

Self-Description Task Protocol

On front page:
Please write one role you play at the top of each page of this booklet. Then, wait for further instructions.

Think of as many as you can.
Take as much time as you need.

On each of 10 subsequent pages:

<div style="text-align:right">p.1-10</div>

Role:

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

_____   _____   _____

Pilot Study - Feedback Interview Protocol

1. Do you think that your answers to the questionnaire were a good indicator of how you were feeling about yourself as you filled it out?

2. Did you read all of the items every time?

3. Did you find the repeated questionnaires inconvenient?

4. Which one item do you think you were most likely to change your answer on from time to time?

5. Which one item do you think you were least likely to change your answer on from time to time?

6. General comments on the repeated questionnaire:

7. Would you be interested in further participation in this study?   YES   NO

APPENDIX C
Neutral Words Generated in the Self-Description Task

Analytical	Financial	Storyteller
Armed (2x)	Feedback	Symbolic
Attends	Follows	Speaker (x2)
Adamant	Feels	Self-employed
Advice	Gift	Sensitive
Alcohol	Going	Shelter
Builder	Guidance	System
Biracial	Gives Advice	Talks (x3)
Busy (x2)	Home	Travels
Business-oriented	Hard-core	Talkative
Beating	Heroin	Traditional (x2)
Care	Hoes	Visits
Challenging (x4)	Image	Verbal (x2)
Challenges	Jacking	Work
Coke	Little	Worker
Counseled	Monetary	Weed
Counselor	Multilingual	Younger
Cultural	Mechanical	
Competitive	Money	Total: 86
Contemplating	Older	Total Unique: 73
Care-giver	Personal	
Directive	Partner	
Drinking	Pussy	
Experimental	Questioning (x3)	
Equal	Quiet (x2)	
Erads (unrateable)	Religious	
Educator	Routine	
Explains	Sprite	

APPENDIX D
Semantic Groupings and Word Frequencies

Table D1

Frequencies of words collapsed into semantic groups

Listed word	Words Collapsed Into It	Total Frequency	Inter-subject Frequency
Provides	Provider	1	1
	Provide	1	1
	Provides	4	3
Total:		6	5
Helpful	Helping	1	1
	Helpful	27	11
Total:		28	11
Listens	Listen	2	1
	Listen to	2	1
	Listener	4	3
	Good Listener	5	4
	Listened	1	1
	Listening	1	1
	Listens	8	4
Total:		23	11
Open	Open-Minded	3	3
	Open	7	4
Total:		10	6
Hard-Working	Hard-Worker	4	3
	Hard-Working	4	3
Total:		8	6
Learns	Learn	1	1
	Learner	1	1
	Learning	1	1
	Learned	1	1
	Learns	4	3
Total:		8	6
Teaches	Teaching	2	2
	Teaches	3	2
Total:		5	3
Leads	Leader	3	3
	Leads	1	1
Total:		4	4
Talks	Talkative	1	1
	Talk to	3	2
	Good Talker	1	1
	Talks	3	1
Total:		8	4

Table D1 (Continued)

Frequencies of words collapsed into semantic groups

Listed word	Words Collapsed into it	Total Frequency	Inter-Subject Frequency
Challenging	Challenges	1	1
	Challenging	4	3
Total:		5	4
Playful	Playing	1	1
	Playful	3	2
Total:		4	3
Protective	Protector	1	1
	Protecting	1	1
	Protection	1	1
	Protective	18	9
Total:		21	11
Straight-Forward	Straight-up	1	1
	Straight-forward	3	2
Total:		4	3
Sociable	Social	1	1
	Sociable	2	2
Total:		3	3
Failure	Failed	1	1
	Failure	4	2
Total:		5	2
Outgoing	Exhibitionistic	1	1
	Extraverted	1	1
	Outgoing	2	2
Total:		4	2`

Self-Description Task Results for Each Participant

Tables E1 through E21 summarize the results of each participant's self-description task individually. Each table indicates the total number of words generated by the participant (column 1), the number of different words (column 2), the number of words on the participants list that also appeared on the final list (column 3) and the number that appeared on Linville's original list (column 4). Each of the columns are also broken down into total, positive, negative and neutral words. The last three rows of each table present the percentages for each column. For example, Table E1 shows that participant 1 wrote 79 words, 55 were positive, 21 were negative and three were neutral. In other words, nearly 70% of the words generated by this participant were positive. Of the 48 different words generated, 12 appeared on the final list while only one appeared on Linville's list.

Table E1

Self-descriptive task results: Participant 1

	1	2	3	4
	Total # of Words	Total # of Different Words	# Words on Final list	# Words on Linville's List
Total List	79	48	12	1
Positive valence	55	33	10	0
Negative valence	21	12	2	1
Neutral valence	3	3	0	0
% Positive	69.62	68.75	83.33	0
% Negative	26.58	25.00	16.67	100
% Neutral	3.80	6.25	0.0	0

Table E 2

Self-descriptive task results: Participant 2

	1 Total # of Words	2 Total # of Different Words	3 # Words on Final list	4 # Words on Linville's List
Total List	47	39	9	2
Positive valence	37	31	8	2
Negative valence	6	5	1	0
Neutral valence	4	3	0	0
% Positive	78.72	79.49	88.89	100
% Negative	12.76	12.82	11.11	0
% Neutral	8.51	7.69	0	0

Table E 3

Self-Descriptive Task Results: Participant 4

	1 Total # of Words	2 Total # of Different Words	3 # Words on Final list	4 # Words on Linville's List
Total List	28	17	8	0
Positive valence	26	15	8	0
Negative valence	2	2	0	0
Neutral valence	0	0	0	0
% Positive	92.86	88.24	100	0
% Negative	7.14	13.33	0	0
% Neutral	0	0	0	0

Table E 4

Self-Descriptive Task Results: Participant 5

	1 Total # of Words	2 Total # of Different Words	3 # Words on Final list	4 # Words on Linville's List
Total List	76	49	11	0
Positive valence	36	20	9	0
Negative valence	24	13	2	0
Neutral valence	16	16	0	0
% Positive	47.37	40.82	81.82	0
% Negative	31.58	26.53	18.18	0
% Neutral	21.05	32.65	0	0

Table E 5

Self-Descriptive Task Results: Participant 6

	1 Total # of Words	2 Total # of Different Words	3 # Words on Final list	4 # Words on Linville's List
Total List	37	24	10	1
Positive valence	31	18	10	0
Negative valence	5	5	0	0
Neutral valence	1	1	0	1
% Positive	83.78	75.00	100	0
% Negative	13.51	20.83	0	0
% Neutral	2.70	4.17	0	100

Table E 6

Self-Descriptive Task Results: Participant 7

| | 1 | 2 | 3 | 4 |
	Total # of Words	Total # of Different Words	# Words on Final list	# Words on Linville's List
Total List	15	13	7	0
Positive valence	11	9	7	0
Negative valence	4	4	0	0
Neutral valence	0	0	0	0
% Positive	73.33	69.23	100	0
% Negative	26.67	30.77	0	0
% Neutral	0	0	0	0

Table E 7

Self-Descriptive Task Results: Participant 8

| | 1 | 2 | 3 | 4 |
	Total # of Words	Total # of Different Words	# Words on Final list	# Words on Linville's List
Total List	38	30	6	2
Positive valence	17	12	6	1
Negative valence	18	16	0	1
Neutral valence	3	2	0	0
% Positive	44.74	40.0	100	50
% Negative	47.37	53.33	0	50
% Neutral	7.89	6.67	0	0

Table E 8

Self-Descriptive Task Results: Participant 9

	1	2	3	4
	Total # of Words	Total # of Different Words	# Words on Final list	# Words on Linville's List
Total List	58	28	6	0
Positive valence	48	20	6	0
Negative valence	1	1	0	0
Neutral valence	9	7	0	0
% Positive	82.76	71.43	100	0
% Negative	1.72	3.57	0	0
% Neutral	15.52	25.00	0	0

Table E 9

Self-Descriptive Task Results: Participant 10

	1	2	3	4
	Total # of Words	Total # of Different Words	# Words on Final list	# Words on Linville's List
Total List	38	25	8	0
Positive valence	34	21	8	0
Negative valence	4	4	0	0
Neutral valence	0	0	0	0
% Positive	89.47	84.00	100	0
% Negative	10.53	16.00	0	0
% Neutral	0	0	0	0

Table E 10

Self-Descriptive Task Results: Participant 11

	1 Total # of Words	2 Total # of Different Words	3 # Words on Final list	4 # Words on Linville's List
Total List	43	35	11	1
Positive valence	29	23	9	1
Negative valence	11	9	2	0
Neutral valence	3	3	0	0
% Positive	67.44	65.71	81.82	100
% Negative	25.58	25.71	18.18	0
% Neutral	6.98	8.57	0	0

Table E 11

Self-Descriptive Task Results: Participant 12

	1 Total # of Words	2 Total # of Different Words	3 # Words on Final list	4 # Words on Linville's List
Total List	46	23	6	2
Positive valence	26	10	4	0
Negative valence	15	10	2	2
Neutral valence	5	3	0	0
% Positive	56.52	43.48	66.67	0
% Negative	32.61	43.48	33.33	100
% Neutral	10.87	13.04	0	0

Table E 12

Self-Descriptive Task Results: Participant 13

	1	2	3	4
	Total # of Words	Total # of Different Words	# Words on Final list	# Words on Linville's List
Total List	78	39	13	1
Positive valence	73	35	13	1
Negative valence	1	1	0	0
Neutral valence	4	3	0	0
% Positive	93.59	89.74	100	100
% Negative	1.28	2.56	0	0
% Neutral	5.13	7.69	0	0

Table E 13

Self-Descriptive Task Results: Participant 14

	1	2	3	4
	Total # of Words	Total # of Different Words	# Words on Final list	# Words on Linville's List
Total List	140	89	23	3
Positive valence	87	49	17	2
Negative valence	51	38	6	1
Neutral valence	2	2	0	0
% Positive	62.14	55.06	73.91	66.67
% Negative	36.43	42.70	26.09	33.33
% Neutral	1.43	2.25	0	0

Table E 14

Self-Descriptive Task Results: Participant 15

	1	2	3	4
	Total # of Words	Total # of Different Words	# Words on Final list	# Words on Linville's List
Total List	14	13	1	0
Positive valence	8	7	1	0
Negative valence	4	4	0	0
Neutral valence	2	2	0	0
% Positive	57.14	53.85	100	0
% Negative	28.57	30.77	0	0
% Neutral	14.29	15.38	0	0

Table E 15

Self-Descriptive Task Results: Participant 16

	1	2	3	4
	Total # of Words	Total # of Different Words	# Words on Final list	# Words on Linville's List
Total List	88	72	18	3
Positive valence	64	50	14	3
Negative valence	21	18	4	0
Neutral valence	3	3	0	0
% Positive	72.73	69.44	77.78	100
% Negative	23.86	25.00	22.22	0
% Neutral	3.41	4.17	0	0

Table E 16

Self-Descriptive Task Results: Participant 17

	1	2	3	4
	Total # of Words	Total # of Different Words	# Words on Final list	# Words on Linville's List
Total List	41	35	11	1
Positive valence	26	23	9	1
Negative valence	11	9	2	0
Neutral valence	4	4	0	0
% Positive	63.41	65.71	81.82	100
% Negative	26.83	25.71	18.18	0
% Neutral	9.76	11.43	0	0

Table E 17

Self-Descriptive Task Results: Participant 18

	1	2	3	4
	Total # of Words	Total # of Different Words	# Words on Final list	# Words on Linville's List
Total List	63	49	6	4
Positive valence	30	22	4	1
Negative valence	32	26	2	3
Neutral valence	0	1	0	0
% Positive	47.62	44.90	66.67	25.0
% Negative	50.79	53.06	33.33	75.0
% Neutral	1.59	2.04	0	0

Table E 18

Self-Descriptive Task Results: Participant 19

	1 Total # of Words	2 Total # of Different Words	3 # Words on Final list	4 # Words on Linville's List
Total List	74	50	19	3
Positive valence	55	33	15	1
Negative valence	14	12	4	1
Neutral valence	5	5	0	1
% Positive	74.32	66.0	78.95	33.33
% Negative	18.92	24.0	21.05	33.33
% Neutral	6.67	10.0	0	33.33

Table E 19

Self-Descriptive Task Results: Participant 20

	1 Total # of Words	2 Total # of Different Words	3 # Words on Final list	4 # Words on Linville's List
Total List	95	54	18	1
Positive valence	63	31	15	0
Negative valence	29	20	3	0
Neutral valence	3	3	0	1
% Positive	66.31	57.41	83.33	0
% Negative	30.53	37.04	16.67	0
% Neutral	3.12	5.56	0	100

Table E 20

Self-Descriptive Task Results: Participant 21

| | 1 | 2 | 3 | 4 |
	Total # of Words	Total # of Different Words	# Words on Final list	# Words on Linville's List
Total List	55	42	16	3
Positive valence	48	35	15	2
Negative valence	3	3	1	1
Neutral valence	4	4	0	0
% Positive	87.27	83.33	93.75	66.67
% Negative	5.45	7.14	6.26	33.33
% Neutral	7.27	9.52	0	0

Table E 21

Self-Descriptive Task Results: Participant 22

| | 1 | 2 | 3 | 4 |
	Total # of Words	Total # of Different Words	# Words on Final list	# Words on Linville's List
Total List	54	49	13	1
Positive valence	28	23	13	1
Negative valence	11	11	0	0
Neutral valence	15	15	0	0
% Positive	51.85	46.94	100	100
% Negative	20.37	22.45	0	0
% Neutral	27.78	30.61	0	0

APPENDIX F
Self-Complexity Card Sort Instructions

Instructions: Trait Sort

In this study I am interested in how you describe yourself. I will give you 33 cards, each of which has one word on it. I'll let you look through the cards when I finish giving you the instructions. Each card contains the name of a trait or characteristic. Your job is to form groups of traits that go together, where each group of traits describes an aspect or part of you or your life. You can sort the traits into groups on any meaningful basis - - but remember to think about yourself while doing this. Each group of traits might represent a different part of yourself. Form as many or as few groups as you want. Continue forming groups until you feel that you have formed the important ones. I realize that this task could be endless, but we want only what you feel is meaningful to you. When you feel that you are straining to form more groups, it is probably a good time to stop.

Each group may contain as few or as many traits as you wish. You do not have to use every card, only those that you feel are descriptive of you. Also, each card can be used in more than one group, so you can keep reusing traits as many times as you like. For example, you may find that you want to use the trait "loving" in several groups. If you wish to use a trait in more than one group, you may use one of these blank cards on you desk. Simply write the trait and its number on a blank card and then proceed to use it as you would the other cards.

One way to do this is to form one or several groups, then I'll write down which cards you put together. Then, then mix up the cards and see if there are other groups that you want to form and then I'll record those ones. Repeat this until you feel that you have formed all the groups that are important to you. Remember to use the blank cards if you want to use the same trait in more than one group. I am only interested in which cards you put together. You don't have to tell me what your groups mean unless you'd like to.

Your responses are strictly anonymous and confidential, so be an honest as you can.

As you are doing the task, I'd like you to keep a few things in mind. Remember that you are describing yourself in this task, not people in general. You do not have to use all of the cards, and you may reuse a card in several groups. Take as much time as you like. Now go ahead and look through the cards and let me know if you have any questions.

APPENDIX G
Data Screening and Variable Distributions

In order to determine whether to use the raw or base rate scores of the MCMI-III

scales, the normality of distributions were compared and checked for outliers. Data

points three standard deviations or more above or below the mean were noted as

outliers. A value of $z_{crit} = 1.96$ was used to evaluate acceptable skewness and kurtosis.

Table G1

Comparison of normality of distribution between BR and raw MCMI scores (N = 45)

	Mean (SD)	Skew (z)	Kurtosis (z)	Outliers (Subj. #)
Y Desirability (raw)	13.87 (4.49)	**-2.80**	.54	-
Y Desirability BR	65.56 (20.97)	**-2.61**	.40	-
2b Depressive (raw)	8.80 (6.82)	1.57	-1.45	-
2b Depressive BR	65.80 (25.23)	**2.84**	.90	-
4 Histrionic (raw)	13.33 (5.45)	-1.38	-.74	-
4 Histrionic BR	40.09 (18.12)	-1.77	-.27	-
5 Narcissistic (raw)	14.84 (5.18)	-.74	-1.36	-
5 Narcissistic BR	57.42 (20.16)	-1.41	-.20	-
6a Antisocial (raw)	14.78 (5.60)	-1.48	-.58	-
6a Antisocial BR	74.13 (18.28	**-4.67**	**3.47**	41, 49
6b Aggressive/ Sadistic (raw)	12.93 (6.52)	.02	-1.20	-
6b Aggressive/ Sadistic BR	62.58 (18.73)	**-2.36**	1.31	49
C Borderline (raw)	10.09 (6.06)	1.51	-1.43	-
C Borderline BR	61.00 (19.14)	**-1.86**	.22	-
D Dysthymia (raw)	5.87 (5.37)	**2.04**	-.72	-
D Dysthymia BR	51.38 (29.83)	**-2.00**	.22	-
CC Major Depression (raw)	5.18 (5.79)	**3.69**	1.30	-
CC Major Depression BR	43.29 (28.15)	-1.23	-1.46	-

In general, the raw MCMI-III scores were deemed to have more normal distributions and showed no outliers. Therefore, the raw scores were chosen over the BR scores for use in analyses.

The raw MCMI-III variables that required transformation due to positive or negative skew included the Desirability scale (negatively skewed, $z = -2.80$), the Dysthymia scale (positively skewed, $z = 2.04$) and the Major Depression scale (positively skewed, $z = 3.69$). See Table G2 for a summary of the results of the transformations applied to the MCMI-III scales.

Table G2

Results of transforming the skewed MCMI-III scales (N = 45)

	Mean (S.D.)	Skew (z)		Transformed Mean (S.D.)	Skew (z)	Kurt (z)	Outlier
Y Desirability (raw)	13.87 (4.49)	**-2.80**	Reflect and SQRT	2.75 (.77)	1.08	-.16	-
D Dysthy\mia (raw)	5.87 (5.37)	**2.04**	SQRT	2.04 (1.31)	.44	-1.47	-
CC Major Depression (raw)	5.18 (5.79)	**3.69**	SQRT	1.83 (1.36)	.74	-1.11	-

The distributions of the remaining variables were checked for normality. Again, data points three standard deviations or more above or below the mean were noted as outliers and a value of $z_{crit} = 1.96$ was used to evaluate acceptable skewness and kurtosis. Table F3 shows the distributions and the results of removing outliers. It was noted that three scales (CFSEI-2 Social subscale, CFSEI-2 Instability, Self-Rating Instability) showed at least one participant with a score considered an outlier. The data

from these participants were removed and the distributions were rechecked. Each of these scales was also significantly skewed and consequently, transformations were applied as an alternative to deleting data. See Table G4 for a description of the transformations applied and the results of transformations with respect to skew, kurtosis and outliers. Table G5 provides a summary of the transformations used.

Table G3

Distribution and outliers in key variables (N = 45)

	Skew (z)	Kurt (z)	Outlier (z)	With Outliers Removed Skew (z)	Kurt (z)	Outlier
Self-Complexity	1.06	-.38	-	-	-	-
NPI	1.57	-.09	-	-	-	-
BSRS: Acting-in	.82	.20	-	-	-	-
BSRS: Acting-out	**2.25**	-.80	-	-	-	-
CFSEI-2 Total Score	.10	-.24	-	-	-	-
CFSEI-2 Social subscale	**-3.29**	1.84	**3** (-3.08)	**-2.49**	.63	-
CFSEI-2 Personal subscale	1.45	-1.92	-	-	-	-
CFSEI-2 General subscale	-.07	-1.15	-	-	-	-
CFSEI-2 Lie subscale	.75	.24	-	-	-	-
CFSEI-2 Instability	**4.94**	**4.16**	**28** (3.26)	**4.17**	**3.44**	**30** (3.11)
Self-Rating of self-esteem	.02	-.78	-	-	-	-
Self-Rating Instability	**4.18**	**4.88**	**30** (3.70)	**2.24**	1.01	-

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Table G4

Description and results of transformations to key variables (N = 45)

| | Mean | | Transformed | | | |
| | | | Mean | Skew | Kurt | Outlier |
	(S.D.)		(S.D.)	(z)	(z)	
BSRS: Acting-out	11.42	SQRT	3.27	1.27	1.18	-
	(6.09		(.87)			
CFSEI-2 Social	5.55	Reflect				-
	(1.82)	and SQRT	1.75	1.24	-.35	
			(.48)			
CFSEI-2 Instability	2.34	Log10	.27	.49	-.56	-
	(1.73)		(.29)			
Self-Rating		SQRT	.79	-.75	-.38	-
(instability)	0.85		(.48)			
	(0.76)					

Table G5

Summary of variables and the transformations

Y Desirability** (raw)	Reflect and SQRT
D Dysthymia* (raw)	SQRT
CC Major Depression* (raw)	SQRT
BSRS Acting-out	SQRT
CFSEI-2 Social	Reflect and SQRT
CFSEI-2 Instability	Log10
Self-Rating (instability)	SQRT

APPENDIX H
ANOVA: Self-Complexity x NPI with Acting-out^{TR} as Dependent Variable

This appendix contains parallel analyses to those presented in Section 4.4.10.1 but the transformed variable, Acting-Out^{TR} was used as the dependent variable in the ANOVA analysis rather than the non-transformed version of the variable.

In order to test the hypothesized interaction between self-complexity and narcissism in predicting acting-out, a median split was obtained on the self-complexity variable and the NPI variable to create the dichotomous variables, low and high self-complexity and low and high NPI. A two-way ANOVA was performed using these variables and using BSRS: Acting-Out^{TR} as the dependent variable. Levene's Test for equality of error variances was non-significant, $F(1, 41) = 1.16$, $p = .34$ and all variables in the analyses were within acceptable limits with regard to skewness and kurtosis. No outliers were identified. Assumptions of normality and homogeneity of variance were met.

There was no significant main effect for self-complexity. Participants with low self-complexity did not report significantly more acting-out ($M = 3.22$) than did participants with high self-complexity ($M = 3.35$), $F(1,41) = 1.49$, $p = .65$. There was also no main effect for narcissism as measured by the NPI. Participants with low narcissism scores did not report significantly less acting-out ($M = 3.12$) than participants with high narcissism scores ($M = 3.45$), $F(1, 41) = 0.24$, $p = .62$. Although the interaction was not significant, the highest level of acting-out was seen in the high NPI, low self-complexity cell ($M = 3.45$) as predicted.

ANOVA: Self-Complexity x MCMI-Narcissism with Acting-out^{TR} as Dependent Variable

This appendix contains parallel analyses to those presented in Section 4.4.10.2 but the transformed variable, Acting-Out^{TR} was used as the dependent variable in the ANOVA analysis rather than the non-transformed version of the variable.

A median split was again obtained to create the dichotomous variables, low and high self-complexity and low and high narcissism. A two-way ANOVA was performed, again using Acting-Out^{TR} as the dependent variable. Levene's test for equality of error variances was not significant, $F(1, 41) = 0.40$, $p = .76$. There was no main effect for self-complexity. The low self-complexity group did not report significantly more acting-out (M = 3.16) than the high self-complexity group ($M = 3.38$), but rather, reported less acting-out, $F(1,41) = .70$, $p = .41$. There was also no significant main effect for narcissism as measured by the MCMI-III. The low narcissism group did not report significantly less acting-out ($M = 3.41$) than the high narcissism group ($M = 3.12$), but rather, reported more acting-out, $F(1,41) = 1.16$, $p = .29$. There was again no significant self-complexity by MCMI-III Narcissism interaction, $F(1,41) = .01$, $p = .93$. In this case, the highest level of acting-out was seen in the high self-complexity, low narcissism group ($M = 3.53$).

APPENDIX J
ANOVAs: Self-Complexity x Cluster B scales

This appendix contains parallel analyses to those presented in Section 4.4.10.3 but the transformed variable, Acting-Out^{TR} was used as the dependent variable in the ANOVA analysis rather than the non-transformed version of the variable.

A median split was obtained on the remaining Cluster B personality scales (Histrionic, Borderline, and Antisocial) and on the Aggressive/Sadistic scale of the MCMI-III. Four separate two-way ANOVAs were then performed to test for significant interactions between self-complexity and each of the personality variables in predicting self-reported acting-out. Table J1 presents a summary of these analyses (parallel to Table 4.16 in the main text).

There was a main effect for Aggressive/Sadistic personality. The high Aggressive/Sadistic group reported significantly more acting-out than the low Aggressive/Sadistic group, $F (1, 41) = 4.74$, $p = .04$. There were no other significant main effects. The self-complexity by Antisocial personality interaction approached significance, $F (1, 41) = 3.55$, $p = .07$.

Table J1

ANOVA: Self-complexity and Cluster B predicting Acting-out^{TR} (N = 45)

	Main Effect (*F*)	Interaction (*F*)
Histrionic	0.51	0.23
Borderline	2.20	0.67
Antisocial	1.425	3.552
Aggressive/Sadistic	4.74*	2.528

* p < .05.

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APPENDIX K
Response Bias Analysis

In order to assess the impact of socially desirable responding, an examination of the two response bias measures (the CFSEI-2 Lie scale and the MCMI-III Desirability scale) was undertaken. Table K1 shows the proportion of the sample that responded in the socially desirable manner to each of the items on the two scales.

The CFSEI-2 manual suggests a score of four or higher indicates a lack of defensiveness (i.e., higher scores indicate less defensiveness). In the current sample, the mean on this scale was 5.5 (SD = 0.99; range = 3.57 to 8.00). Only three participants scored below the cut-off score of four. The mean on the MCMI-III Desirability scale, in the current sample was BR 65.5 (SD = 20.90, range = 10 to 100). Seventeen participants were above the recommended cut-off score of BR 75.

Examination of the responses to the "yes" items versus the "no" items revealed a strong "yes" response bias. Over 50% of the sample responded "yes" regardless of item content. For example, items 2 and 7 on the CFSEI-2 Lie scale from Table K1 ask substantially the same question, yet 58% gave the socially desirable response to the "yes" question while only 26% gave the socially desirable response to the "no" question. Since the CFSEI-2 Lie scale has six of eight items scored in the "no" direction (i.e., is not balanced for "yes" bias), higher scores on this scale may to be due to the "yes" bias rather than to socially desirable responding. However, those who should be affected by social desirability and answer "no" get a low score on the scale. Therefore, this appears to be a poor scale for measuring social desirability.

The MCMI-III Desirability scale is more balanced with respect to number of "yes" and "no" socially desirable responses (10 "yes" items and 11 "no" items) and is therefore less affected by the apparent "yes" response bias in the sample.

Table K1

Proportion of sample responding in a socially desirable manner / per item (N = 45)

Items	Socially Desirable Response	% of sample giving socially desirable response
CFSEI-2 Lie scale		
1	YES	73
2	YES	58
3	NO	15
4	NO	40
5	NO	6
6	NO	22
7	NO	26
8	NO	9
MCMI-III Desirability scale		
1	YES	60
2	YES	56
3	YES	67
4	YES	55
5	YES	69
6	YES	76
7	YES	58
8	YES	53
9	YES	67
10	YES	59
11	NO	52
12	NO	31
13	NO	31
14	NO	27
15	NO	16
16	NO	31
17	NO	38
18	NO	31
19	NO	22
20	NO	31
21	NO	18

Note. To protect test security, test items are described by arbitrary 'item number' rather than by the content of the item.

The correlation of the "yes" and "no" scales of each of the response bias scales was examined. See Table K2 for a summary of the correlations. The "yes" and "no" scales of the CFSEI-2 Lie scale were negatively correlated as were the "yes" and "no" scales of the MCMI-III Desirability scale.

Table K2

Correlation matrix of the "yes" and "no" scales of the MCMI-III Desirability scale and the CFSEI-2 Lie scale (N = 45)

	CFSEI-2 Lie Scale "no" (2 items)	MCMI-III Desirability "no" (11 items)	MCMI-III Desirability "yes" (10 items)
CFSEI-2 Lie Scale "yes" (6 items)	-.40**	-.32*	.11
CFSEI-2 Lie scale "no" (2 items)		.09	-.40**
MCMI-III Desirability "no" (11 items)			-.32*

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

Correlations Controlling for Socially Desirable Responding

The correlations between key variables of Study 1 and the social desirability

scales were examined. These correlations are summarized in Table L1. There was no

association between socially desirable responding and self-complexity. The CFSEI-2

Lie scale was associated only with the MCMI-III Narcissism scale such that more

defensive responding was associated with higher narcissism scores. On the other hand,

those scoring higher on the MCMI-III Desirability scale (i.e., wanting to present

themselves in a positive light), report more (MCMI-III) narcissism, less acting-in or

acting-out, and higher, more stable self-esteem. This is consistent with expectations of

socially desirable responding.

Table L1

Correlations of social desirability scales with other key variables (N = 45)

	MCMI-III Desirability	MCMI-III Desirability[REF]	CFSEI-2 Lie
Self-Complexity	-.06	.06	.08
MCMI-Narcissism	.38**	-.37**	-.31*
NPI	-.08	.09	-.24
Acting-Out	-.41**	.40**	-.05
Acting-Out[TR]	-.41**	.40	.05
Acting-In	-.30*	.29	.05
CFSEI-2 (mean)	.67**	-.68	-.24
Self-Rating (mean)	.53**	-.53**	-.13
CFSEI-2 Instability	-.26	.25	-.18
CFSEI-2 Instability[TR]	-.37*	.36*	-.12
Self-Rating Instability	-.26	.27	-.02
Self-Rating Instability[TR]	-.33*	.32*	.08

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

Two *t* tests were performed to determine if there were any significant differences in MCMI-III Desirability score based on ethnicity or offender type. The *t* tests were run using both the transformed and non-transformed MCMI-III Desirability scale. The results were not significantly different and Levene's test of equality of variances was non-significant for the analyses using the non-transformed variable (F (1, 39) = 0.09, p = .77 (for ethnicity); F (1, 43) = 0.001, p = .98 (for offender type)). Consequently, the results of analysis using the non-transformed variables are presented. The mean score on the MCMI-III Desirability scale for Aboriginal participants (M = 15.21, SD = 4.05) was not significantly different than the mean score for Caucasian participants (M = 12.86, SD = 4.56), t (39) = -1.73, p = .09. Also, the mean score for violent offenders (M = 14.58, SD = 4.18) was not significantly different than the mean score for sexual offenders (M = 13.04, SD = 4.79), t (43) = 1.15, p = .26.

Finally, Table L2 presents zero-order and partial correlations (controlling for MCMI-III Desirability score) among key variables in Study 1. Controlling for social desirability did not impact correlations with self-complexity. In general, correlations with CFSEI-2 Total score were reduced with the exception of the correlation between CFSEI-2 and NPI which increased. Correlations between acting-out and variability of self-rating and between acting-in and self-rated self-esteem were also reduced.

Table L2

Correlations controlling for MCMI-III Desirability^{TR} (N = 45)

	Self-Comp	MCM-Narc	NPI	Act-Out^{TR}	Act-In	CFSE	Self-Rate	CFSE Instab^{TR}	Self-Rate Instab^{TR}
Self-Comp		.22	.34*	.14	-.15	-.02	-.06	-.12	-.04
MCM-Narc	.26		.54**	-.03	-.43**	.39**	.22	-.02	-.03
NPI	.34*	.61**		.20	-.36*	.22	.09	-.04	.10
Act-Out^{TR}	.14	.16	.20		.05	-.46**	-.29	.39**	.32*
Act-In	-.18	-.36*	-.41**	-.08		-.31*	-.36*	.09	.17
CFSEI	.03	.21	.39**	-.27	-.16		.62**	-.47**	-.24
Self-Rate	-.03	.03	.16	-.10	-.26	.46**		-.40**	-.25
CFSEI Instab^{TR}	-.14	.04	-.21	.23	.12	-.33*	-.40**		.39**
Self-Rate Instab^{TR}	-.05	.04	.06	.14	.14	-.08	-.06	.26	

Note. Zero-order correlations are presented in the top triangle; partial correlations controlling for MCMI-Desirability are presented in the lower triangle.

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

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APPENDIX M
Expanding the Self-Complexity Word List

For Study 2, the word list used in the self-complexity card sort was expanded to facilitate analyzing the differential impact of positive versus negative self-complexity. The list of traits used in Study 1 contained a larger proportion of positive than negative words rather than a balance of positive and negative as in Linville's (1987) original list. The methodology for this alteration is as follows:

In order to balance the positive and negative words, a thesaurus was consulted to obtain antonyms for each word in the list (Table M1). The list was then inspected for any redundancy and repeated or redundant words were removed. The final list contained a total of 62 words with 31 positively valenced and 31 negatively valenced words. Although a pilot study was planned to determine the equivalence of this list to the list used in Study 1, it could not be completed due to a long delay in receiving ethical approval from Correctional Services Canada.

Table M1

List of words used in the self-complexity card sort

Linville's List	Study 1 List	Antonym of Study 1 List words
affectionate	aggressive[a]	peaceful[b]
anxious	angry	calm[b]
assertive	caring	uncaring
competitive	dependable[c]	undependable[d]
conformist	friendly	unwelcoming
emotional	good	bad
humorous	happy	unhappy
imaginative	hard-working	lazy
impulsive	helpful	unhelpful
individualistic	honest	dishonest
industrious	kind	uncaring
insecure	controlling	permissive
insecure	listens	ignores
lazy	lonely	sociable
mature	loving	cold
not studious	loyal	disloyal
organized	mean	compassionate
outgoing	open-minded	narrow-minded
playful	patient	impatient
quiet	positive	negative
rebellious	protective	aggressive[a]
reckless	proud	ashamed
reflective	provides	neglects
relaxed	reliable[c]	unreliable[d]
reserved	respectful	disrespectful
rude	selfish	giving
shallow	smart	stupid
soft-hearted	strong	weak
sophisticated	supportive	unsupportive
studious	confident	insecure
unconventional	thoughtful	inconsiderate
unfriendly	trusting	suspicious
unorganized	understanding	unfeeling

[a] 'aggressive" was the antonym for both 'peaceful' and 'protective' but was included in the list once.

[b] 'peaceful' and 'calm' were too similar and so 'peaceful' was removed.

[c] 'reliable' and 'dependable' were judged to be too similar and so 'reliable' was removed.

[d] 'unreliable' and 'undependable' were also too similar and so 'undependable' was removed.

APPENDIX N
Demographic Questionnaire

Thank you for agreeing to participate in this study.
Your time and effort in responding to the following questions is greatly appreciated.
Please feel free to ask the researcher if you have any questions.

Name: _____   FPS: _____

1. Date of Birth: _____   Age: _____

2. Marital Status: _____   Never married (no current relationship)
_____   Dating (have not lived together)
_____   Was living with partner but not married (commonlaw)
_____   Married (first time)
_____   Divorced
_____   Remarried (second, third or more marriage)
_____   Widowed

3. Ethnic identity: _____   Caucasian (White)
_____   First Nations; specify: _____
_____   Metis
_____   Other; specify:_____ ___

4. Education:
Circle number of years completed in school: 1 2 3 4 5 6 7 8 9 10 11 12
_____ High School Diploma
_____ College Diploma
_____ University Degree
_____ Other; specify: _____

5. Have you participated in any programming while incarcerated? ____ yes ____no
If yes, which program(s)?

_____
_____
_____
_____
_____
_____
_____
_____

Thank You.

APPENDIX O
NPI Items in Each Factor

1. **Entitlement / Exploitativeness**
   13. I find it easy to manipulate others
   14. I insist upon getting the respect that is due me.
   24. I expect a great deal from others.
   25. I will never be satisfied until I get all that I deserve.
   27. I have a strong will to power.
   38. I get upset when people don't notice how I look when I go out in public.
   39. I am more capable than others.

2. **Leadership / Authority**
   1. I have a natural talent for influencing people
   7. I like to be the center of attention
   10. I see myself as a good leader
   11. I am assertive
   12. I like authority over others.
   30. I really like to be the center of attention.
   32. People always seem to recognize my authority.
   33. I would prefer to be a leader.

3. **Superiority / Arrogance**
   3. I would do anything on a dare
   6. I can talk my way out of anything
   16. I can read people like a book
   20. I will usually show off if I get the chance.
   21. I always know what I'm doing.
   23. Everyone likes to hear my stories.
   35. I can make anyone believe anything.
   36. I am a born leader.

4. **Self-absorption / Self-admiration**
   4. I know I'm good because everyone keeps telling me so
   9. I am a special person
   15. I like to show off my body.
   19. I like to look at my body.
   26. I like to be complimented.
   29. I like to look at myself in the mirror.
   34. I am going to be a great person.
   40. I am an extraordinary person.

Note. Original scale published by Raskin, R., & Hall, C. (1979); factor analysis published by Emmons, R. (1984).

Self-Report of Reactive Violent Behaviour

BEHAVIOUR HISTORY

This questionnaire is asking about your **behavioural history,** that is, how you have acted in the past. We are interested in how you have reacted to **certain situations** that you may have encountered in the past.

These situations include times when you:
- **Felt someone insulted you.**
- **Felt someone disrespected you.**
- **Felt you had failed or not been successful at something.**
- **Felt someone didn't treat you as well as you deserved to be treated.**
- **Felt you had to do something to "save face".**

Please feel free to ask the researcher about any situations you are not sure of. Remember that your answers are confidential so please answer as honestly and completely as you can.

Please indicate how often you have reacted to the kinds of situations described above with the following behaviours (as an adult):

Estimate how many times you:

1. Became angry ………………………………… _____ weights*
2. Yelled at someone ………………………….. _____ (x 1)
3. Threatened someone verbally ……………….. _____ (x 1.5)
4. Threatened someone with a weapon ……….... _____ (x 4)
5. Thrown something at someone ……………... _____ (x 1.5)
6. Pushed or shoved someone ………………….. _____ (x 2)
7. Punched, slapped, or kicked someone ……… _____ (x 2.5)
8. Beat up someone …………………………….. _____ (x 5)
9. Hit someone with an object or weapon ……... _____ (x 5)
10. Stabbed someone ……………………………. _____ (x 8)
11. Forced yourself sexually on someone ………. _____ (x 9)
12. Attempted to kill someone …………………... _____ (x 10)
13. Caused the death of someone ………………. _____ (x 15)

Have you reacted to these kinds of situation with other kinds of aggressive behaviours? If yes, please indicate what kinds of behaviour and how often:

_____
_____
_____
_____

* version completed by participants did not contain the units for weighting responses

APPENDIX Q
Official Record of Violent Behaviour

1. Security Rating: 1   2   3
                          Minimum   Medium   Maximum

2. Offence History (taken from CPIC):
A. VIOLENT

Offence Type	# Convictions (Youth)	# Convictions (Adult)	# Charges
Murder 1			
Murder 2			
Manslaughter			
Attempted Murder			
Sexual Assault / Rape			
Sexual Assault with weapon			
Sexual Exploitation			
Buggery / Beastiality			
Indecent Assault / Act			
Inv. to Sexual Touching			
Exposure			
Kidnap			
Abduction			
Hijack			
Escape			
Assault			
Assalt CBH			
Unlawfully CBH			
Forcible Confinement			
Aggravated Assault			
Assault with weapon			
Robbery			
Offensive Weapons			
Dangerous use of auto			
Dangerous Sex Offender			
Dangerous Offender			
Threatening			
Criminal Negligence			
Prison Breach			
Careless use of firearm			
Arson			
OTHER (specify):			
TOTALS:			

2 (continued): Offence History (taken from CPIC):
B. NON-VIOLENT

Offence Type	# Convictions (Youth)	# Convictions (Adult)	# Charges
Theft			
Attempted theft			
Possess stolen property			
Possess property obtained by crime			
Break and Enter / Commit			
Trespass			
Mischief			
Uttering forged document			
Possess weapon			
Carry concealed weapon			
Driving while impaired			
Driving while disqualified			
Take auto WOC			
Possess scheduled substance			
Trafficking (sched. substance)			
Fail to stop at accident			
Fail to comply			
Fail to attend court			
Fail to appear			
Unlawfully at large			
Forgery			
Fraud			
Obstruct Peace			
OTHER (specify):			
TOTALS:			

C. GENERAL / Totals

Total # Convictions*	Total # Charges	# Parole Violations	# Parole Revocations	Total of Sentences of Incarceration (Months) **	Total Time Incarcerated (Months)

* include the index offence
** count the time regardless of whether the sentence was / is concurrent or consecutive (i.e., 2 sentences of 4 years served concurrently equals a total of 96 months for "Total of Sentences" but a maximum of 48 months for "Total Time Incarcerated".
** include total months of index offence sentence even if not completely served (i.e., in year one of a five year sentence, count as five years).

3. Current / INDEX Offence (will need to read description of offence in OMS):

      a) Offence: _____

      b) Sentence: _____

      c) Reactivity Rating: 1   2   3   4   5
           Comments:

Details of Reactivity Rating Scale:
To assign a "reactivity rating" to index offence, read descriptions available in the OMS data base. Look, in particular, for descriptions related to stated or implied motives and for indications of precipitating events.

1: *Clearly instrumental*:
        Crime committed with motive such as obtaining money for drugs or alcohol or obtaining drugs or alcohol,; including participation in organized / gang related activities (as long as victim was not source of personal insult / threat)
2: *Likely instrumental*:
        Available information is suggestive of a rating of 1 but not definitively.
3: *Unable to assign a rating*; not enough information
4: *Likely reactive*
        Available information is suggestive of a rating of 5 but not definitively.
5: *Clearly reactive*:
        Presence of insult or ego threat prior to offense. Description includes statement by offender that he was "reacting" to something; May include offense against victim that was not the source of the insult / threat.

4. Institutional Behaviour;

	# Charges	# Serious	# Involving Aggression*	# incidents of Self-Harm
Current Incarceration				
Previous Incarceration				
Totals:				

*Charges involving aggression:
  Will include:
          -Disrespect / abuse / threaten / assault staff
          -Any violence / altercation (including verbal) between participant and other
                      inmates or staff
          -Destruction of property
  Will NOT include:
          -Drug use / possession / positive drug test / positive urinalysis / refuse sample
          -Possession of weapon / drug paraphernalia / other contraband
          -Not standing for count / late for count
          -Disobey direct order
          -Violation of rules (i.e., sleeping in, going places not supposed to go)
          -Tattooing (unless doing it to someone against their will).

Collateral Report of Reactivity (completed by parole officers)

<u>Collateral Report of Reactivity</u>

1. Name of respondent: _____

2. Nature of relationship to participant: _____

3. Duration of relationship to participant: _____

4. Have you had the opportunity to give the offender **bad** news? Y   N
Describe most recent event briefly:

5. Have you had the opportunity to give the offender **good** news? Y   N
Describe most recent event briefly:

6. In general, would you consider this offender to be (please circle your response):

MORE   EQUALLY   LESS   'emotional' than other offenders.

MORE   EQUALLY   LESS   impulsive than other offenders.

MORE   EQUALLY   LESS   angry than other offenders.

MORE   EQUALLY   LESS   aggressive than other offenders.

MORE   EQUALLY   LESS   stable than other offenders

7. How would you rate this offenders' self-esteem? HIGH   MODERATE   LOW

8. How stable would you say is this offenders' *self-esteem*?
_____ Very Stable
_____ Somewhat Stable
_____ Somewhat Unstable
_____ Very Unstable

APPENDIX S
Buss Perry Aggression Questionnaire (BPAQ)

5-point scale (1-5)

Physical Aggression:
1. I can't control the urge to strike another person
2. Given enough provocation, I may hit another person.
3. If somebody hits me, I hit back.
4. I get into fights a little more than the average person.
5. If I have to resort to violence to protect my rights, I will.
6. There are people who pushed me so far that we came to blows
7. I can think of no good reason for ever hitting a person. *
8. I have threatened people I know.
9. I have become so mad that I have broken things.

Verbal Aggression
1. I tell my friends openly when I disagree with them.
2. I often find myself disagreeing with people.
3. When people annoy me, I may tell them what I think of them.
4. I can't help getting into arguments when people disagree with me.
5. My friends say that I'm somewhat argumentative.

Anger
1. I flare up quickly but get over it quickly.
2. When frustrated, I let my irritation show.
3. I sometimes feel like a powder keg ready to explode.
4. I am an even tempered person.*
5. Some of my friends think I'm a hothead
6. Sometimes I fly off the handle for no good reason.
7. I have trouble controlling my temper.

Hostility
1. I am sometimes eaten up with jealousy.
2. At times, I feel I have gotten a raw deal out of life.
3. Other people always seem to get the breaks.
4. I wonder why sometimes I feel so bitter about things.
5. I know that "friends" talk about me behind my back.
6. I am suspicious of overly friendly strangers.
7. I sometimes feel that people are laughing at me behind my back.
8. When people are especially nice, I wonder what they want.

*reverse scored

Source: Buss, A. H., & Perry, M. (1992). The aggression questionnaire. *Journal of Personality and Individual Differences, 63*, 452-459.

Significant Event Record and PANAS

Evaluative Events Record

Did you experience any *evaluative events* this week? Y   N
That is, events where you felt someone was making a judgment (either good or bad) about you?

If yes:
(if more than one thing happened, pick the one positive and one negative event that was *most recent*)

1. What day? _____
2. Briefly describe the event:

_____

_____

_____

_____

2. Did the stressful event involve you and another person or people? Y   N

3. Was it a random occurrence? Y   N

4. Was the outcome: GOOD   NEUTRAL   BAD   for you.

5. How did you feel right after the event?*

1	**2**	**3**	**4**	**5**
very slightly or not at all	a little	moderately	quite a bit	extremely

   1. Interested…_____   11. Irritable   _____
   2. Distressed.. _____   12. Alert   _____
   3. Excited…. _____   13. Ashamed   _____
   4. Upset…. _____   14. Inspired   _____
   5. Strong…. _____   15. Nervous   _____
   6. Guilty…. _____   16. Determined _____
   7. Scared…. _____   17. Attentive _____
   8. Hostile…. _____   18. Jittery   _____
   9. Enthusiastic_____   19. Active   _____
  10. Proud…. _____   20. Afraid   _____

* Question 5 is the PANAS

APPENDIX U
Data Screening for Study 2

The distributions of all variables to be used in analyses in Study 2 were examined with regarding to skew, kurtosis and missing data. Data points three standard deviations or more above or below the mean were noted as outliers. A value of $z_{crit} =$ 1.96 was used to evaluate acceptable skewness and kurtosis. If a distribution was identified as problematic, transformations were applied. See Tables U2 through U12 for a summary of the analyses of the distributions and the types and results of transformations used.

TableU1

Distributions of MCMI-III Cluster B Personality scales (N = 96)

	MCMI Narc	MCMI APD	MCMI Ag/Sad	MCMI BPD	MCMI BPD Square root	MCMI Histrion	MCMI Histrion Refl - SQRT
N Valid	96	96	96	96	96	96	96
Missing	0	0	0	0	0	0	0
Mean	15.35	13.75	11.17	8.51	2.70	15.31	3.01
Std. Deviation	4.56	5.27	6.26	5.78	1.10	5.06	0.81
Variance	20.82	27.75	39.13	33.45	1.21	25.56	.66
Skewness	0.22	-0.29	0.31	0.68	-0.33	-0.77	0.19
Std. Error of Skewness	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Z skew	0.88	-1.19	1.25	**2.76**	-1.34	**3.14**	0.79
Kurtosis	-0.12	-0.30	-0.74	-0.11	-0.05	-0.09	-0.34
Std. Error of Kurtosis	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Z kurt	-0.24	-0.62	-1.52	-0.22	-0.09	-0.18	-0.70
Minimum	6.00	2.00	0.00	0.00	0.0	2.00	1.00
Maximum	27.00	24.00	25.00	24.00	4.90	24.00	4.80

Table U2

Distributions of NPI Total and factor scores (N = 96)

	NPI Tot	NPI EE	NPI EE (SQRT) *	NPI LA	NPI SA	NPI SA (+1 SQRT)	NPI SS
N Valid	96	96	96	96	96	96	96
Missing	0	0	0	0	0	0	0
Mean	11.43	1.05	0.76	3.06	1.47	1.51	2.47
Std. Deviation	5.37	1.23	0.69	1.68	1.35	0.41	1.89
Variance	28.80	1.50	0.48	1.62	1.83	0.18	1.52
Skewness	0.40	1.62	0.19	0.37	0.94	0.40	0.43
Std. Error of Skewness	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Z skew	1.62	**6.57**	0.79	1.51	**3.82**	1.61	1.75
Kurtosis	-0.52	3.34	-1.09	0.27	0.67	-0.53	-0.67
Std. Error of Kurtosis	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Z kurt	-1.06	**6.83**	**-2.24**	0.55	1.38	-1.08	-1.37
Minimum	1.00	0.00	0.00	0	0	1.00	0
Maximum	25.00	6.00	2.45	8.00	6.00	2.65	7.00

*NPI-EE: Only 9 participants had a score of three of more on this subtest.

Table U3

Distributions of STAXI Total and subscale scores (N = 96)

	Anger Index	AX/I	AX/O	AX/O SQRT	Ac/I	Ac/O	Trait Anger
N Valid	96	96	96	96	96	96	96
Missing	0	0	0	0	0	0	0
Mean	35.19	16.75	16.15	3.99	22.62	23.35	18.18
Std. Deviation	14.77	4.62	3.74	0.46	5.71	4.93	5.70
Variance	218.24			0.21			
Skewness	0.10	0.61	0.64	0.37	0.05	-0.08	0.81
Std. Error of Skewness	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Z skew	0.41	**2.48**	**2.62**	1.50	.203	.33	**3.30**
Kurtosis	-0.86	0.06	0.13	-0.20	-1.04	-0.89	-0.12
Std. Error of Kurtosis	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Z kurt	-1.75	0.12	0.27	0.41	**-2.14**	1.83	0.25
Minimum	5.00	9	9	3	12	12	10
Maximum	65.00	30	27	5.2	32	32	32

Table U4

Distributions and transformations of Self-Complexity variables (N = 96)

	SCpos	SCpos Square root	SCneg	SCneg Square root	SCtot	SCtot Square root
N Valid	96	96	96	96	96	96
Missing	0	0	0	0	0	0
Mean	1.49	1.15	1.39	1.14	2.18	1.46
Std. Deviation	.91	0.41	0.71	0.31	0.76	0.25
Variance	0.82	0.17	0.51	0.10	0.58	0.06
Skewness	0.57	-0.39	0.83	-0.09	0.89	0.46
Std. Error of Skewness	0.25	0.25	0.25	0.25	0.25	0.25
Z skew	**2.31**	-1.58	**3.39**	-0.36	**3.62**	1.87
Kurtosis	-0.03	0.01	1.26	0.31	0.76	-.052
Std. Error of Kurtosis	0.49	0.49	0.49	0.49	0.49	0.49
Z kurt	-0.05	0.02	**2.58**	0.65	1.56	-0.11
Minimum	0.21	0.14	0.21	0.46	0.97	0.99
Maximum	4.15	2.04	3.87	1.97	**4.68**	2.16

Table U5

Distributions and transformations of BSRS Acting in and Acting-Out (N = 96)

	BSRS – Acting in	BSRS – Acting out	BSRS– Acting out (SQRT)	BSRS– Acting out (+1 SQRT)
N Valid	96	96	96	96
Missing	0	0	0	0
Mean	8.81	6.91	2.37	2.66
Std. Deviation	3.75	4.85	1.13	0.92
Variance	14.07	23.50	1.28	0.85
Skewness	0.18	0.55	-0.63	-0.18
Std. Error of Skewness	0.25	0.25	0.25	0.25
Z skew	0.73	**2.23**	**-2.55**	-0.72
Kurtosis	-0.75	-0.17	-0.06	-0.59
Std. Error of Kurtosis	0.49	0.49	0.49	0.49
Z kurt	-1.54	-0.35	-0.13	-1.21
Minimum	0	0	0	1.00
Maximum	16.0	20.00	4.47	4.58

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Table U6

Distributions and transformations of Self-Esteem and Self-Esteem variability (N = 96)

	Mean Total SE	Mean Total SE (Refl & SQRT)	Variability of SE	Variability of SE (SQRT)
N Valid	96	96	96	96
Missing	0	0	0	0
Mean	23.50	2.86	2.26	1.44
Std. Deviation	6.13	1.01	1.23	0.40
Variance	37.56	1.03	1.52	0.16
Skewness	-0.77	0.25	0.92	0.38
Std. Error of Skewness	0.25	0.25	0.25	0.25
Z skew	**-3.14**	1.03	**3.75**	1.54
Kurtosis	-0.34	-0.88	0.44	-0.47
Std. Error of Kurtosis	0.49	0.49	0.49	0.49
Z kurt	-0.69	-1.81	0.90	-0.97
Minimum	8.50	1.00	0.41	0.64
Maximum	31.67	4.92	**6.13**	2.48

TableU7

Distribution of subscale scores of the CFSEI-2 (N = 96)

	CFSEI General	General – Reflect & SQRT	CFSEI- Personal	Personal - Reflect & SQRT	CFSEI- Social	Social - Reflect & SQRT
N Valid	96	96	96	96	96	96
Missing	0	0	0	0	0	0
Mean	12.06	2.09	5.40	1.79	6.06	1.66
Std. Deviation	2.96	0.65	2.32	0.62	1.62	0.44
Variance	8.77	0.42	5.38	0.38	2.64	0.19
Skewness	-1.08	0.54	-0.52	0.22	-1.30	0.77
Std. Error of Skewness	0.25	0.25	0.25	0.25	0.25	0.25
Z skew	**-4.39**	1.17	**-2.11**	0.88	**-5.28**	3.11
Kurtosis	0.65	-0.45	-1.06	-1.38	1.43	0.67
Std. Error of Kurtosis	0.49	0.49	0.49	0.49	0.49	0.49
Z kurt	1.33	-1.00	**-2.17**	2.82	2.93	1.37
Minimum	3.00	1.00	0.17	1.00	0.83	1.00
Maximum	15.83	3.72	8.00	2.97	**8.00**	2.86

Table U8

Distributions and transformation of average affect and anger (N = 96)

	Average Pos PN	Average NegPN	Average Neg PN-SQRT	Average Anger	Average Anger - SQRT	Average Anger – LOG 10
N Valid	96	96	96	96	96	96
Missing	0	0	0	0	0	0
Mean	28.36	17.39	4.12	21.97	4.64	1.32
Std. Deviation	7.01	5.25	0.62	6.89	0.70	0.12
Variance	49.11	27.56	0.38	47.45	0.48	0.02
Skewness	-0.06	0.62	0.36	1.12	0.88	0.65
Std. Error of Skewness	0.25	0.25	0.25	0.25	0.25	0.25
Z skew	-0.23	**2.53**	1.48	**4.57**	**3.56**	2.64
Kurtosis	-0.38	-0.32	-0.70	0.65	-0.07	-0.56
Std. Error of Kurtosis	0.49	0.49	0.49	0.49	0.49	0.49
Z kurt	-0.78	-0.65	-1.43	1.33	-0.15	-1.16
Minimum	13.33	10.0	3.16	15.00	3.87	1.18
Maximum	44.50	31.67	5.63	45.67	6.76	1.66

Table U9

Distributions and transformation of affect and anger variability (N = 96)

	Var. of Pos Emotions	Var. of Neg Emotions	Var. of Total Emotions	Var. of Total PN Emot (SQRT)	Var. of Anger	Var. of Anger (SQRT)
N Valid	96	96	96	96	96	96
Missing	0	0	0	0	4	0
Mean	7.34	6.07	8.89	2.89	7.09	3.34
Std. Deviation	2.98	3.66	4.52	0.74	5.62	1.28
Variance	8.89	13.36	20.42	0.56	31.56	1.64
Skewness	0.29	0.32	0.89	0.29	0.52	-0.39
Std. Error Skewness	0.25	0.25	0.25	0.25	0.25	0.25
Z skew	1.17	1.28	**3.63**	1.19	**2.13**	-1.58
Kurtosis	-0.92	-0.65	0.58	-0.27	-0.68	-0.75
Std. Error of Kurtosis	0.49	0.49	0.49	0.49	0.49	0.49
Z kurt	-1.89	-1.32	1.18	-0.56	-1.39	1.53
Minimum	2.45	0.00	2.10	1.45	0.00	0.00
Maximum	13.51	14.83	22.94	4.79	21.11	4.59

Table U10

Distributions and transformations of BPAQ, PDS, and MCMI-Desirability (N = 96)

	BPAQ Total	BPAQ Total SQRT	PDS Total	PDS Total (SQRT)	MCMI-Desirab	MCMI-Desirab (refl and SQRT)
N Valid	96	96	96	96	96	96
Missing	0	0	0	0	0	0
Mean	72.48	8.45	9.28	2.90	14.52	2.63
Std. Deviation	17.90	1.04	5.46	0.94	4.19	0.74
Variance	320.53	1.08	29.87	0.89	17.58	0.55
Skewness	0.62	0.29	0.95	-0.23	-1.10	0.42
Std. Error of Skewness	0.25	0.25	0.25	0.25	0.25	0.25
Z skew	**2.52**	1.19	**3.85**	-0.93	**-4.48**	1.69
Kurtosis	0.30	-0.09	1.13	0.89	1.17	-0.07
Std. Error of Kurtosis	0.49	0.49	0.49	0.49	0.49	0.49
Z kurt	0.62	-0.18	**2.31**	1.82	**2.39**	-0.14
Minimum	41	6.40	0	0	0	1.00
Maximum	122	11.05	29.00	5.39	21	4.69

Table U11

Distributions and transformations of self- and official-report violent behavior

	Self-Report Behav	Self-Reort Behav Square root	Total Convict. (official)	Total Convict. (official) (SQRT)	Total Violent Convict. (official)	Total Violent Convict. (official) (SQRT)
N Valid	92	92	96	96	96	96
Missing	4	4	0	0	0	0
Mean	502.67	19.91	28.60	2.26	5.99	2.26
Std. Deviation	474.78	10.36	21.70	0.95	4.74	0.95
Variance	225416.4	107.34	471.06	4.49	22.43	0.90
Skewness	1.49	0.42	0.88	0.07	1.39	0.33
Std. Error of Skewness	0.25	0.25	0.25	0.25	0.25	0.25
Z skew	**5.97**	1.66	**3.57**	0.27	**5.67**	1.35
Kurtosis	2.42	-0.29	0.51	-0.71	2.06	0.10
Std. Error of Kurtosis	0.50	0.50	0.49	0.49	0.49	0.49
Z kurt	**4.94**	-0.58	1.03	-1.45	**4.22**	0.21
Minimum	0	0	**1.00**	1.00	0	0
Maximum	**2348**	48.46	**101.00**	**10.05**	**23.00**	4.80

Note. N = 96, except for Self-report of violent behaviour (N = 92).

Table U12

Distributions and transformations of other official report violent behaviour variables

	Total Charges & Conv	Total Charges & Conv (SQRT)	Violent Instit. charges	Total Instit. charges	Total Sentence (Months)	Total Sentence (Log10)
N Valid	96	96	96	96	96	96
Missing	0	0	0	0	0	0
Mean	35.71	5.55	1.00	6.12	319.28	2.33
Std. Deviation	25.27	2.23	3.18	10.31	344.91	0.38
Variance	638.55	4.98	10.10	106.38	118963.8	0.15
Skewness	0.83	-0.04	6.22	2.87	2.79	0.11
Std. Error of Skewness	0.25	0.25	0.25	0.25	0.25	0.25
Z skew	**3.39**	-0.15	**25.26**	**11.66**	**11.34**	0.45
Kurtosis	0.59	-0.56	44.14	9.08	8.86	0.08
Std. Error of Kurtosis	0.49	0.49	0.49	0.49	0.49	0.49
Z kurt	1.21	-0.31	**90.45**	**18.61**	**18.14**	0.16
Minimum	1.00	1.00	0	0	30.00	1.48
Maximum	**117.00**	10.82	**26.00**	53.00	**2005.00**	3.30

Note: 68% of participants scored 0 on Violent Institutional Charges and an additional 17% scored 1 (1 each had score of 5, 6, 15, and 26). Not transformable into a normal distribution.
Note: 49% of participants scored 0 or 1 on Institutional Charges. Not transformable to normal distributions

APPENDIX V
Positive and Negative Self-Complexity: Parallel Analyses

V.1. Introduction.

This appendix contains analyses using positive and negative self-complexity in a format parallel to the analyses using total self-complexity found in the main body of the document. This appendix begins with a brief description and example of how positive and negative self-complexity scores were derived from each card sort (Section V.2), then a series of correlational analyses are presented (Section V.3) and finally the regression analyses presented in the main text are repeated using positive self-complexity and then negative self-complexity (Section V.4).

V.2. Derivation of Positive and Negative Self-Complexity Scores

The positive and negative self-complexity scores were calculated from the same card-sorting task as total self-complexity. To calculate positive self-complexity, the negatively valenced words were removed and the remaining words were entered into the formula to calculate H. A similar process was employed for the calculation of negative self-complexity. That is, the positive words were removed and the remaining words were entered into the formula to calculate H. The sample card sort presented in Table U1 provides an example of the process.

This card sort is also exemplifies a common trend among the participants towards compartmentalizing their positive and negative characteristics. That is, many participants tended to group most or all of the negatively valenced words into one self-aspect such as "me while drinking", "me in jail", or "me in the past".

Table V1

Sample self-complexity card sort and derivation of positive, negative and total self-complexity scores (+H, -H, totH).

Father		Husband		Friend		Inmate	
8	**14**	8	43	8	31	**14**	**29**
45	31	45	31	45	52	**55**	**06**
34	16	34	52	34	16	16	**12**
26	14	17	16	17	60	**07**	**47**
51	60	60	26	51	58	**38**	**44**
33	58	58	51	33	49	**21**	**23**
59	49	49	33	02	35	**13**	**09**
35	02	02	59	27	57	**10**	**28**
48	27	27	35	48	42	**11**	**61**
41	42	42	48	41	39	**05**	**18**
32	31	39	41	32	01	**53**	**46**
3	1	01	32	30	03	**22**	**24**
22	31	30	03	22	**36**	**36**	**50**
43	40	40	22	40	43	**25**	**37**
						54	

Note. Negatively valenced words are in bold type.

Total self-complexity: All data is entered.
                          H = 2.46

Positive self-complexity: Pile 1 (father): all data except 14 is entered
                            Pile 2 (husband): all data is entered
                            Pile 3 (friend): all data except 36 is entered
                            Pile 4 (inmate): only 16 is entered
                                H = 1.47

Negative self-complexity: Pile 1 (father): only 14 is entered
                            Pile 3 (friend): only 36 is entered
                            Pile 4 (inmate): all data except "16" is entered
                                H = 1.18

V.3. Correlational Analyses of Positive and Negative Self-Complexity

The association of positive and negative self-complexity with the two measures of socially desirable responding was explored. Both positive and negative self-complexity were significantly correlated with the MCMI-III Desirability scale ($r = .20$, $p = .05$; $r = .28$, $p = .01$) such that lower positive or negative self-complexity was associated with more socially desirable responding. Table V2 provides a summary of these correlations.

Table V2

Correlations of Self-complexity with measures of socially desirable responding (PDS and MCMI-Desirability) (N = 96)

	PDS[TR]	MCMI-III Desirability[REF]
Self-Complexity		
Total[TR]	-.16	.14
Positive[TR]	-.17	.20*
Negative[TR]	-.16	.28**

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

The association of positive and negative self-complexity with the other key variables was explored. In general, positive and negative self-complexity were correlated with the other variables in a pattern similar to total self-complexity. The exceptions were as follows. Both total and negative self-complexity were significantly correlated with average negative affect while positive self-complexity was not. Total and Negative self-complexity were also correlated with the stability of state anger ($r = .24$, $p = .01$; $r = .29$, $p = .004$) such that higher (total and negative) self-complexity was

associated with more variability in levels of anger while positive self-complexity was

not related to variability in anger. See Table V3 for a summary of these analyses.

Table V3

Correlation of self-complexity with narcissism, self-esteem and affect (N = 96)

	Self-Complexity		
	Total[TR]	Positive[TR]	Negative[TR]
MCMI-III Narcissism	-.01	-.02	.12
	-.07	-.11	-.01
NPI – Total score	.12	.14	.15
	.06	.07	.07
CFSEI-2 – Total[REF]	.18	.18	.19
	.23*	.27**	.33**
PANAS – Positive Affect	-.07	-.06	.003
	-.12	-.12	-.07
PANAS – Negative Affect	.24*	.11	.28**
	.24*	.12	.29**
STAXI-2 State Anger	.29**	.21*	.31**
	.30**	.24*	.36**
Variability Self-Esteem [REF]	.11	.07	.12
	.11	.08	.13
Variability Positive Affect	.02	-.11	.001
	-.003	-.13	-.02
Variability Negative Affect	.11	.01	.15
	.12	.02	.16
Variability of Anger[TR]	.23*	.17	.29**
	.25*	.21*	.34**

Note. Partial correlations controlling for social desirability in top row; zero-order correlations in lower
row.

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

Finally, the association of positive and negative self-complexity with the

behaviour variables (i.e., the variables that served as the dependent variables in the

regression analyses) was explored. Again the pattern of correlations was similar to the

pattern observed with total self-complexity. All three types of self-complexity were associated with acting-out as measured by the BSRS, such that higher self-complexity was associated with increased self-reported acting-out in response to stress. No direct relationship was found between the three types of self-complexity and self-reported violent behaviour, or total number of violent convictions. See Table V4 for a summary of these analyses.

Table V4

Correlations of self-complexity with behaviour variables (N = 96)

	Self-Complexity		
	Total[TR]	Positive[TR]	Negative[TR]
BSRS: Acting-out[TR]	.24*	.27**	.26*
	.23**	.27**	.35**
SR Violent Behaviour[a]	.01	.16	-.02
	-.04	.03	-.08
Total Violent Convictions[TR]	.12	.11	.13
	.07	.02	.11

Note. Partial correlations controlling for social desirability in top row; zero-order correlations in lower row.

[a] N = 92 for correlations with SR Violent Behaviour

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

V.4. Regression Analyses

Table V5 presents the correlations of all variables used in the regression analyses with total, positive and negative self-complexity, including interaction terms. The parallel table in the main text is Table 5.29.

Table V5

Correlations of variables used in regression analyses with positive and negative self-complexity (N = 96)

	Self-Complexity		
	Total^{TR}	Positive^{TR}	Negative^{TR}
PDS^{TR}	-.16	-.17	-.16
	-	-	-
MCMI-Des^{REF}	.14	.20*	.28**
	-	-	-
Acting-Out^{TR}	.28**	.32**	.33**
	.24*	.27**	.26*
Self-Report Behaviour^{TR}	.001	.15	-.02
	.01	.16	-.02
Tot. Violent Convic^{TR}	.10	.06	.11
	.10	.04	.10
NPI	.06	.07	.07
	.12	.14	.15
MCMI-Narcissism	-.07	-.11	-.01
	.01	-.02	.12
Antisocial PD	.18	.26**	.26**
	.11	.18	.17
Borderline PD^{TR}	.22*	.25*	.30**
	.15	.15	.15
BPAQ^{TR}	.30**	.38**	.34**
	.25*	.32**	.24*
STAXI: Anger Index	.25*	.32**	.26**
	.18	.24*	.14*

Table V5 (Continued)

Correlations of variables used in regression analyses with positive and negative self-complexity (N = 96)

	Self-Complexity		
	Total[TR]	Positive[TR]	Negative[TR]
Variability ANG[TR]	.23*	.17	.29**
	.25*	.21*	.36**
Self-Esteem[REF]	.18	.18	.19
	.23*	.27**	.33**
Variability Self-Esteem[TR]	.11	.07	.12
	.11	.07	.13
Var. Positive Affect	.02	-.11	.001
	-.003	-.13	-.02
Var. Negative Affect	.11	.01	.15
	.12	.02	.18
Npi x SC[TR]	.13	-.09	-.08
	.15	-.12	-.13
Mc5 x SC[TR]	-.02	-.02	-.004
	-.001	-.03	-.02

Note. Partial correlations controlling for social desirability (MCMI-Y; PDS) are presented in top row; zero-order correlations in the bottom row.

V.4.1 Regression Analyses Using Positive Self-Complexity

Three pairs of sequential regression analyses were performed (parallel to Section 5.4.8.1 in the main text) substituting positive self-complexity for total self-complexity in testing the hypothesized interaction of self-complexity and narcissism in predicting the three dependent variables, Acting-out, self-reported violent behaviour and total number of violent convictions (one with each measure of narcissism, NPI and MCMI). See

Tables V6 through V11 for a summary of the sequential regression analyses using positive self-complexity.

Substituting positive self-complexity for total self-complexity had minimal impact on the models overall and minimal impact on the beta weights of the predictors.

Table V6

Summary of sequential regression analysis for predicting Acting-out[TR] (POS-SC[TR], NPI and interaction) (N = 96)

VARIABLE	B	SE B	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	-0.11	0.10	-.12	-1.14	.26	-.12
MCMI Desirability[REF]	0.31	0.13	.25	2.44	.02	.24

$$R = .30; R^2 = .09$$
$$F_{inc} (2, 93) = 4.42, p = .02$$

Step 2						
PDS[TR]	-0.10	0.10	-.10	-1.05	.30	-.11
MCMI Desirability[REF]	0.29	0.13	.24	2.32	.02	.24
Self-Complexity (POS-SC[TR])	0.56	0.22	.25	2.49	.02	.25
Narcissism (NPI)	0.03	0.02	.16	1.63	.11	.17
Interaction (NPI x POS-SC[TR])	-0.00	0.04	-.01	-.08	.94	.01

$$R^2_{inc} = .09$$
$$F_{inc} (3, 90) = 3.40, p = .02$$

Overall Model

$$R = .42; R^2 = .18$$
$$F (5,90) = 3.94, p = .003$$

Table V7

Summary of sequential regression analysis for predicting Acting-out[TR] (POS-SC[TR], MCMI-Narcissism and interaction) (N = 96)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	-0.11	0.10	-.12	-1.14	.26	-.12
MCMI Desirability[REF]	0.31	0.13	.25	2.44	.02	.24
					$R = .30;\ R^2 = .09$	
					$F_{inc}\ (2,\ 93) = 4.42,\ p = .02$	
Step 2						
PDS[TR]	-0.08	0.10	-.08	-0.78	.44	-.08
MCMI Desirability[REF]	0.31	0.14	.25	2.32	.02	.24
Self-Complexity (POS-SC[TR])	0.61	0.22	.27	2.74	.01	.28
Narcissism (MCMI)	0.02	0.02	.12	1.16	.25	.12
Interaction (MCMI x POS-SC[TR])	0.02	0.05	.04	0.42	.67	-.04
					$R^2_{inc} = .08$	
					$F_{inc}\ (3,\ 90) = 2.96,\ p = .04$	
Overall Model						
					$R = .41;\ R^2 = .17$	
					$F\ (5,\ 90) = 3.66,\ p = .005$	

Table V8

Summary of sequential regression analysis for predicting self-report violent behaviour (POS-SC^{TR}, NPI and interaction) (N = 92)

VARIABLE	B	SE B	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	1.04	1.16	.10	0.90	.37	.10
MCMI Desirability^{REF}	0.75	1.50	.05	0.50	.62	.05
					$R = .10; R^2 = .01$	
					F_{inc} (2, 89) = 0.46, p = .64	
Step 2						
PDS^{TR}	1.16	1.18	.11	0.98	.33	.10
MCMI Desirability^{REF}	0.50	1.56	.04	0.32	.75	.04
Self-Complexity (POS-SC^{TR})	4.36	2.72	.18	1.60	.11	.17
Narcissism (NPI)	0.04	0.21	.02	0.19	.85	.02
Interaction (NPI x POS-SC^{TR})	-0.65	0.51	-.14	-1.28	.21	.14
					$R^2_{inc} = .04$	
					F_{inc} (3, 86) = 1.33, p = .27	
Overall Model						
					$R = .23; R^2 = .05$	
					F (5, 86) = 0.98, p = .43	

Note. N = 92

Table V9

Summary of sequential regression analysis for predicting self-reported violent behaviour (POS-SC^{TR}, MCMI and interaction)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	1.04	1.16	.10	0.90	.37	.10
MCMI Desirability^{REF}	0.75	1.50	.05	0.50	.62	.05

$$R = .10;\ R^2 = .01$$
$$F_{inc}\ (2, 89) = 0.46,\ p = .64$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS^{TR}	1.32	1.20	.12	1.10	.28	.12
MCMI Desirability^{REF}	0.88	1.65	.06	0.53	.60	.06
Self-Complexity (POS-SC^{TR})	4.14	2.69	.17	1.54	.13	.16
Narcissism (MCMI)	0.20	0.26	.09	0.78	.44	.08
Interaction (MCMI x POS-SC^{TR})	0.24	0.59	.04	0.40	.69	-.04

$$R^2_{inc} = .03$$
$$F_{inc}\ (3, 86) = 1.02,\ p = .39$$

Overall Model

$$R = .21;\ R^2 = .04$$
$$F\ (5, 86) = 0.79,\ p = .56$$

Note. $N = 92$

Table V10

Summary of sequential regression analysis for predicting self-reported violent behaviour (POS-SC^{TR}, MCMI and interaction)

VARIABLE	B	SE B	β	t	p	R$_{partial}$
Step 1						
PDS^{TR}	0.05	0.11	.05	0.46	.65	.05
MCMI Desirability^{REF}	0.11	0.14	.09	0.82	.41	.08

$R = .09; R^2 = .01$

$F_{inc}(2, 93) = 0.38, p = .68$

VARIABLE	B	SE B	β	t	p	R$_{partial}$
Step 2						
PDS^{TR}	0.07	0.11	.07	0.62	.54	.06
MCMI Desirability^{REF}	0.08	0.14	.06	0.58	.56	.06
Self-Complexity (POS-SC^{TR})	0.12	0.25	.05	0.46	.65	.05
Narcissism (NPI)	-0.01	0.02	-.04	-0.41	.68	-.04
Interaction (NPI x POS-SC^{TR})	0.04	0.05	.10	0.90	.37	-.09

$R^2_{inc} = .01$

$F_{inc}(3, 90) = .39, p = .76$

Overall Model

$R = .14; R^2 = .02$

$F(5, 90) = 0.38, p = .86$

Note. $N = 96$

Table V11

Summary of sequential regression analysis for predicting total number of violent convictions (POS-SC^{TR}, MCMI-Narcissism and interaction)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	0.05	0.11	.05	0.46	.65	.05
MCMI Desirability^{REF}	0.11	0.14	.09	0.82	.41	.08

$R = .09; R^2 = .01$

$F_{inc}\ (2, 93) = 0.38, p = .68$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS^{TR}	0.11	0.11	.11	1.03	.30	.11
MCMI Desirability^{REF}	0.02	0.14	.02	0.15	.88	.02
Self-Complexity (POS-SC^{TR})	0.10	0.24	.04	0.42	.67	.04
Narcissism (MCMI)	-0.04	0.02	-.21	-1.91	.059	-.20
Interaction (MCMI x POS-SC^{TR})	0.10	0.05	.19	1.88	.06	-.20

$R^2_{inc} = .08$

$F_{inc}\ (3, 90) = 2.66, p = .053$

Overall Model

$R = .30; R^2 = .09$

$F\ (5, 90) = 1.76, p = .13$

Note. $N = 96$

An additional three pairs of sequential multiple regression analyses were performed (parallel to Section 5.4.8.2) substituting positive self-complexity for total self-complexity in an expanded model predicting the three dependent variables. See Tables V12 through V17 for summaries of these analyses. Again, substituting positive self-complexity for total self-complexity had minimal impact on the model overall and minimal impact on the beta weights of the predictors.

Table V12

Summary of sequential regression analysis for predicting BSRS Acting-out[TR] (NPI as the measure of narcissism in expanded model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	-0.11	0.10	-.12	-1.14	.26	-.12
MCMI Desirability[REF]	0.31	0.13	.25	2.44	.02	.24

$$R = .30;\ R^2 = .09$$
$$F_{inc}\ (2,\ 93) = 4.42,\ p = .02$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS[TR]	0.001	0.10	.001	0.01	.99	.001
MCMI Desirability[REF]	0.01	0.16	.06	0.46	.65	.05
Self-Complexity (POS-SC[TR])	0.27	0.21	.12	1.28	.20	.14
Narcissism (NPI)	-0.003	0.02	-.02	-0.23	.82	-.02
Antisocial Personality	0.01	0.02	.08	0.63	.53	.07
Borderline Personality[TR]	-0.02	0.13	-.02	-0.16	.87	-.02
Aggression (BPAQ[TR])	0.50	0.11	.56	4.36	<.001	.42
Self-Esteem[REF]	-0.12	0.12	-.13	-0.95	.34	-.10
vNA	0.001	0.02	.01	0.06	.95	.01

$$R^2_{inc} = .28$$
$$F_{inc}\ (7,\ 86) = 5.30,\ p < .001$$

$$R = .60;\ R^2 = .36$$
$$F\ (9,\ 86) = 5.42,\ p < .001$$

Note. $N = 96$

Table V13

Summary of sequential regression analysis for predicting BSRS Acting-out[TR] (MCMI as the measure of narcissism in expanded model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	-0.11	0.10	-.12	-1.14	.26	-.12
MCMI Desirability[REF]	0.31	0.13	.25	2.44	.02	.24

$R = .30; R^2 = .09$

$F_{inc}\ (2, 93) = 4.42, p = .02$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS[TR]	<0.01	0.09	<.01	<.01	.99	<.01
MCMI Desirability[REF]	0.06	0.17	.05	0.38	.70	.04
Self-Complexity (POS-SC[TR])	0.26	0.21	.12	1.23	.22	.13
Narcissism (MCMI)	-0.01	0.02	-.03	-0.28	.78	-.03
Antisocial Personality	0.01	0.02	.08	0.63	.53	.07
Borderline Personality[TR]	-0.02	0.13	-.02	-0.14	.89	-.02
Aggression (BPAQ[TR])	0.49	0.11	.56	4.44	<.01	.43
Self-Esteem[REF]	-0.12	0.12	-.13	-.095	.34	-.10
vNA	<.01	0.02	.004	0.05	.96	.005

$R^2_{inc} = .28$

$F_{inc}\ (7, 86) = 5.30, p < .001$

$R = .60; R^2 = .36$

$F\ (9, 86) = 5.42, p < .001$

Note. $N = 96$

Table V14

Summary of sequential regression analysis for predicting self-reported violent behaviour
(NPI as the measure of narcissism in expanded model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	1.04	1.16	.10	0.90	.37	.10
MCMI Desirability^{REF}	0.75	1.50	.05	0.50	.62	.05

$R = .10;\ R^2 = .01$

$F_{inc}\ (2,\ 89) = 0.46,\ p = .64$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS^{TR}	3.22	1.20	.30	2.68	.01	.28
MCMI Desirability^{REF}	0.22	2.04	.02	0.11	.91	.01
Self-Complexity (POS-SC^{TR})	2.44	2.68	.10	0.91	.36	.10
Narcissism (NPI)	-0.36	0.22	-.19	-1.63	.11	-.18
Antisocial Personality	0.81	0.28	.42	2.85	.005	.30
Borderline Personality^{TR}	-0.50	1.61	-.05	-0.31	.76	-.03
Aggression (BPAQ^{TR})	2.38	1.46	.24	1.63	.11	.18
Self-Esteem^{REF}	-2.70	1.58	-.26	-1.71	.09	-.18
vNA	-0.29	0.30	-.10	-0.97	.34	-.11

$R^2_{inc} = .20$

$F_{inc}\ (7,\ 82) = 3.03,\ p = .007$

$R = .46;\ R^2 = .21$

$F\ (9,\ 82) = .2.47,\ p = .015$

Note. $N = 92$

Table V15

Summary of sequential regression analysis for predicting self-reported violent behaviour (MCMI as the measure of narcissism in expanded model)

VARIABLE	B	SE B	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	1.04	1.16	.10	0.90	.37	.10
MCMI Desirability^{REF}	0.75	1.50	.05	0.50	.62	.05

$$R = .10; R^2 = .01$$
$$F_{inc} (2, 89) = 0.46, p = .64$$

VARIABLE	B	SE B	β	t	p	$R_{partial}$
Step 2						
PDS^{TR}	2.78	1.19	.26	-.058	.02	.25
MCMI Desirability^{REF}	0.65	2.18	.05	2.33	.77	.03
Self-Complexity (POS-SC^{TR})	2.16	2.73	.09	0.30	.43	.09
Narcissism (MCMI)	-0.13	0.26	-.06	0.79	.63	-.05
Antisocial Personality	0.74	0.29	.38	-.048	.01	.28
Borderline Personality^{TR}	-0.50	1.65	-.05	2.60	.76	-.03
Aggression (BPAQ^{TR})	1.87	1.45	.19	-0.30	.20	.14
Self-Esteem^{REF}	-2.45	1.59	-.24	1.29	.13	-.17
vNA	0.26	0.30	-.09	-1.54	.39	-.10

$$R^2_{inc} = .18$$
$$F_{inc} (7, 82) = 2.61, p = .02$$

$$R = .44; R^2 = .19$$
$$F (9, 82) = 2.14, p = .04$$

Note. $N = 96$

Table V16

Summary of sequential regression analysis for predicting total number of violent convictions (NPI as the measure of narcissism in expanded model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	0.05	0.11	.05	0.46	.65	.05
MCMI Desirability^{REF}	0.11	0.14	.09	0.82	.41	.08

$$R = .09;\ R^2 = .01$$
$$F_{inc}\ (2,\ 93) = 0.38,\ p = .68$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS^{TR}	0.12	0.11	.12	1.11	.27	.12
MCMI Desirability^{REF}	0.31	0.19	.24	1.59	.12	.17
Self-Complexity (POS-SC^{TR})	0.22	0.25	.10	0.88	.38	.10
Narcissism (NPI)	<.01	0.02	-.02	-0.19	.85	-.02
Antisocial Personality	0.08	0.03	.46	3.15	<.01	.32
Borderline Personality^{TR}	-0.26	0.15	-.31	-1.76	.08	-.19
Aggression (BPAQ^{TR})	-0.27	0.14	-.30	-2.02	.05	-.21
Self-Esteem^{REF}	0.02	0.15	.02	0.12	.90	.01
vNA	<.01	0.03	<.01	<.01	.99	<.01

$$R^2_{inc} = .14$$
$$F_{inc}\ (7,\ 86) = 2.07,\ p = .06$$

$$R = .39;\ R^2 = .15$$
$$F\ (9,86) = 1.70,\ p = .10$$

Note. $N = 96$

Table V17

Summary of sequential regression analysis for predicting total number of violent convictions (MCMI as the measure of narcissism in expanded model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	0.05	0.11	.05	0.46	.65	.05
MCMI Desirability[REF]	0.11	0.14	.09	0.82	.41	.08

$$R = .09;\ R^2 = .01$$
$$F_{inc}\ (2,\ 93) = 0.38,\ p = .68$$

Step 2						
PDS[TR]	0.16	0.11	.16	1.48	.14	.16
MCMI Desirability[REF]	0.15	0.20	.12	0.76	.45	.08
Self-Complexity (POS-SC[TR])	0.15	0.25	.07	0.62	.53	.07
Narcissism (MCMI)	-0.05	0.02	-.24	-2.12	.04	-.22
Antisocial Personality	0.09	0.03	.50	3.47	.001	.35
Borderline Personality[TR]	-0.23	0.15	-.26	-1.54	.13	-.16
Aggression (BPAQ[TR])	-0.23	0.13	-.25	-1.80	.08	-.19
Self-Esteem[REF]	<.01	0.14	<.01	<.01	.99	<.01
vNA	-0.01	0.03	-.02	-0.21	.83	-.02

$$R^2_{inc} = .18$$
$$F_{inc}\ (7,\ 86) = 2.81,\ p = .01$$

$$R = .44;\ R^2 = .19$$
$$F\ (9,\ 86) = 2.28,\ p = .02$$

Note. $N = 96$

Table V18

Summary of results of regression analyses (with positive self-complexity)

REGRESS TABLE #	DV	MEASURE OF NARCISSISM	MODEL R	SIG IVS	$R_{partial}$
Testing Interaction					
1	AO	NPI	.42**	MCMI-Des	.24
				Pos S.C.	.24
2	AO	MCMI	.41**	MCMI-Des	.24
				Pos S.C.	.28
3	SR	NPI	.23		
4	SR	MCMI	.21		
5	OR	NPI	.14		
6	OR	MCMI	.30	MCMI-Narc [a]	-.20
				SCxNarc [a]	-.20
Larger model					
7	AO	NPI	.60**	BPAQ	.42
8	AO	MCMI	.60**	BPAQ	.43
9	SR	NPI	.46*	PDS	.28
				APD	.30
10	SR	MCMI	.44*	PDS	.25
				APD	.28
11	OR	NPI	.39	APD	.32
				BPAQ	-.21
12	OR	MCMI	.44*	MCMI-Narc	-.22
				APD	.35
				BPAQ [a]	-.19

[a] $p < .06$; * $p < .05$; ** $p < .01$

V.4.2 Regression analyses using Negative self-complexity

Three pairs of sequential regression analyses were performed (parallel to Section 5.4.8.1) substituting negative self-complexity for total self-complexity in testing the hypothesized interaction of self-complexity and narcissism in predicting the three dependent variables, Acting-out, Self-reported violent behaviour and Total number of violent convictions (one regression performed with each measure of narcissism: NPI and MCMI). See Tables V19 through V24 for a summary of these analyses.

Substituting negative self-complexity for total self-complexity had minimal impact on the model overall and minimal impact on the beta weights of the predictors.

Table V19

Summary of sequential regression analysis for predicting Acting-out[TR] (NEG-SC[TR], NPI and interaction)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	-0.11	0.10	-.12	-1.14	.26	-.12
MCMI Desirability[REF]	0.31	0.13	.25	2.44	.02	.24

$R = .30;\ R^2 = .09$

$F_{inc}\ (2, 93) = 4.42,\ p = .02$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS[TR]	0.10	0.10	-.10	-1.00	.33	-.10
MCMI Desirability[REF]	0.26	0.13	.21	2.04	.04	.21
Self-Complexity (NEG-SC[TR])	0.69	0.30	.23	2.30	.02	.24
Narcissism (NPI)	0.03	0.02	.16	1.58	.12	.16
Interaction (NEG-SC[TR] x NPI)	-0.03	0.05	-.07	-0.72	.47	-.08

$R^2_{inc} = .09$

$F_{inc}\ (3, 90) = 3.36,\ p = .02$

Overall Model

$R = .42;\ R^2 = .18$

$F\ (5, 90) = 3.92,\ p = .003$

Note. $N = 96$

Table V20

Summary of sequential regression analysis for predicting Acting-out[TR] (NEG -SC[TR], MCMI and interaction)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	-0.11	0.10	-.12	-1.14	.26	-.12
MCMI Desirability[REF]	0.31	0.13	.25	2.44	.02	.24

$$R = .30;\ R^2 = .09$$
$$F_{inc}\ (2,\ 93) = 4.42,\ p = .02$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS[TR]	-0.07	0.10	-.08	-0.74	.46	-.08
MCMI Desirability[REF]	0.27	0.14	.22	1.98	.05	.20
Self-Complexity (NEG -SC[TR])	0.75	0.30	.25	2.50	.01	.25
Narcissism (MCMI)	0.02	0.02	.08	0.74	.46	.08
Interaction (NEG -SC[TR] x MCMI)	-0.05	0.06	-.08	-0.78	.44	-.08

$$R^2_{inc} = .07$$
$$F_{inc}\ (3,\ 90) = 2.66,\ p = .053$$

Overall Model

$$R = .40;\ R^2 = .16$$
$$F\ (5,\ 90) = 3.46,\ p = .007$$

Note. $N = 96$

Table V21

Summary of sequential regression analysis for predicting self-reported violent behaviour (NEG -SC^{TR}, NPI and interaction)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	1.04	1.16	.10	0.90	.37	.10
MCMI Desirability^{REF}	0.75	1.50	.05	0.50	.62	.05

$R = .10;\ R^2 = .01$

$F_{inc}\ (2,\ 89) = 0.46,\ p = .64$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS^{TR}	0.76	1.21	.07	0.63	.53	.07
MCMI Desirability^{REF}	1.13	1.63	.08	0.69	.49	.07
Self-Complexity (NEG-SC^{TR})	-0.43	3.95	-.01	-0.11	.91	-.01
Narcissism (NPI)	0.10	0.21	.05	0.44	.66	.05
Interaction (NEG-SC^{TR} x NPI)	0.65	0.63	.11	1.02	.31	.11

$R^2_{inc} = .01$

$F_{inc}\ (3,\ 86) = 0.40,\ p = .75$

Overall Model

$R = .16;\ R^2 = .02$

$F\ (5,\ 86) = 0.42,\ p = .83$

Note. $N = 92$

Table V22

Summary of sequential regression analysis for predicting self-reported violent behaviour (NEG -SC^{TR}, MCMI and interaction)

VARIABLE	B	SE B	β	t	p	R$_{partial}$
Step 1						
PDS^{TR}	1.04	1.16	.10	0.90	.37	.10
MCMI Desirability^{REF}	0.75	1.50	.05	0.50	.62	.05

$R = .10; R^2 = .01$

$F_{inc} (2, 89) = 0.46, p = .64$

VARIABLE	B	SE B	β	t	p	R$_{partial}$
Step 2						
PDS^{TR}	0.83	1.22	.08	0.68	.50	.07
MCMI Desirability^{REF}	1.28	1.74	.09	0.73	.46	.08
Self-Complexity (NEG -SC^{TR})	-1.08	3.92	-.03	-0.27	.78	-.03
Narcissism (MCMI)	0.19	0.26	.09	0.73	.47	.08
Interaction (NEG -SC^{TR} x MCMI)	0.31	0.74	.05	0.42	.67	.05

$R^2_{inc} = .01$

$F_{inc} (3, 86) = 0.25, p = .86$

Overall Model

$R = .14; R^2 = .02$

$F (5, 86) = 0.33, p = .89$

Note. $N = 92$

Table V23

Summary of sequential regression analysis for predicting total number of violent convictions (NEG -SC, NPI and interaction)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	0.05	0.11	.05	0.46	.65	.05
MCMI Desirability^{REF}	0.11	0.14	.09	0.82	.41	.08

$$R = .09;\ R^2 = .01$$
$$F_{inc}\ (2,\ 93) = 0.38,\ p = .68$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS^{TR}	0.08	0.11	.08	0.72	.48	.08
MCMI Desirability^{REF}	0.06	0.14	.04	0.40	.69	.04
Self-Complexity (NEG-SC^{TR})	0.30	0.34	.10	0.89	.38	.09
Narcissism (NPI)	-0.009	0.02	-.05	-0.45	.65	-.05
Interaction (NEG-SC^{TR} x NPI)	-0.04	0.06	-.09	-0.81	.42	-.08

$$R^2_{inc} = .02$$
$$F_{inc}\ (3,\ 90) = 0.54,\ p = .65$$

Overall Model

$$R = .16;\ R^2 = .03$$
$$F\ (5,90) = 0.48,\ p = .79$$

Note. $N = 96$

Table V24

Summary of sequential regression analysis for predicting total number of violent convictions (NEG -SC^{TR}, MCMI and interaction)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	0.05	0.11	.05	0.46	.65	.05
MCMI Desirability^{REF}	0.11	0.14	.09	0.82	.41	.08

$$R = .09;\ R^2 = .01$$
$$F_{inc}\ (2, 93) = 0.38,\ p = .68$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS^{TR}	0.11	0.11	.11	0.99	.32	.10
MCMI Desirability^{REF}	-0.04	0.15	-.03	-0.25	.80	-.03
Self-Complexity (NEG -SC^{TR})	0.38	0.32	.13	1.18	.24	.12
Narcissism (MCMI)	-0.05	0.02	-.24	-2.18	.03	-.22
Interaction (NEG -SC^{TR} x MCMI)	-0.08	0.06	-.13	-1.23	.22	-.13

$$R^2_{inc} = .07$$
$$F_{inc}\ (3, 90) = 2.37,\ p = .08$$

Overall Model

$$R = .28;\ R^2 = .08$$
$$F\ (5, 90) = 1.58,\ p = .17$$

Note. $N = 96$

An additional three pairs of sequential multiple regression analyses were performed (parallel to Section 5.4.8.2 in the main text) substituting negative self-complexity for total self-complexity in an expanded model predicting the three dependent variables. See Tables V25 through V30 for summaries of these analyses. Substituting negative self-complexity for total self-complexity had minimal impact on the model overall and minimal impact on the beta weights of the predictors.

Table V25

Summary of sequential regression analysis for predicting Acting-out[TR] (NPI as the measure of narcissism in expanded model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	-0.11	0.10	-.12	-1.14	.26	-.12
MCMI Desirability[REF]	0.31	0.13	.25	2.44	.02	.24

$R = .30;\ R^2 = .09$

$F_{inc}\ (2,\ 93) = 4.42,\ p = .02$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS[TR]	0.01	0.10	.01	0.07	.94	.01
MCMI Desirability[REF]	0.05	0.16	.04	0.33	.74	.04
Self-Complexity (NEG -SC[TR])	0.47	0.28	.16	1.70	.09	.18
Narcissism (NPI)	-0.01	0.02	-.03	-0.34	.74	-.04
Antisocial Personality	0.01	0.02	.08	0.60	.55	.06
Borderline Personality[TR]	-0.02	0.12	-.02	-0.16	.87	-.02
Aggression (BPAQ[TR])	0.51	0.11	.58	1.63	<.01	.45
Self-Esteem[REF]	-0.13	0.12	-.14	-1.04	.30	-.11
vNA	<.01	0.02	-.02	-0.18	.85	-.02

$R^2_{inc} = .28$

$F_{inc}\ (7,\ 86) = 5.55,\ p < .001$

$R = .61;\ R^2 = .37$

$F\ (9,\ 86) = 5.63,\ p < .001$

Note. $N = 96$

Table V26

Summary of sequential regression analysis for variables predicting Acting-out[TR] (MCMI as the measure of narcissism in expanded model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	-0.11	0.10	-.12	-1.14	.26	-.12
MCMI Desirability[REF]	0.31	0.13	.25	2.44	.02	.24

$$R = .30;\ R^2 = .09$$
$$F_{inc}\ (2,\ 93) = 4.42,\ p = .02$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS[TR]	0.008	0.09	.01	0.08	.93	.01
MCMI Desirability[REF]	0.03	0.17	.02	0.18	.86	.02
Self-Complexity (NEG -SC[TR])	0.48	0.28	.16	1.72	.09	.18
Narcissism (MCMI)	-0.01	0.02	-.06	-0.57	.57	-.06
Antisocial Personality	0.01	0.02	.08	0.61	.54	.07
Borderline Personality[TR]	-0.01	0.13	-.02	-0.11	.91	-.01
Aggression (BPAQ[TR])	0.51	0.11	.57	4.76	<.01	.46
Self-Esteem[REF]	-0.13	0.12	-.14	-1.05	.30	-.11
vNA	-0.01	0.02	-.02	-0.22	.83	-.02

$$R^2_{inc} = .29$$
$$F_{inc}\ (7,\ 86) = 5.59,\ p < .001$$

$$R = .61;\ R^2 = .37$$
$$F\ (9,\ 86) = 5.67,\ p < .001$$

Note. $N = 96$

Table V27

Summary of sequential regression analysis for predicting self-reported violent behaviour (NPI as the measure of narcissism in expanded model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	1.04	1.16	.10	0.90	.37	.10
MCMI Desirability^{REF}	0.75	1.50	.05	0.50	.62	.05

$$R = .10;\ R^2 = .01$$
$$F_{inc}\ (2,\ 89) = 0.46,\ p = .64$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS^{TR}	3.07	1.21	.28	2.54	.01	.27
MCMI Desirability^{REF}	0.35	2.06	.02	0.17	.86	.02
Self-Complexity (NEG -SC^{TR})	-2.82	3.74	-.08	-0.75	.45	-.08
Narcissism (NPI)	-0.34	0.22	-.18	-1.56	.12	-.17
Antisocial Personality	0.84	0.29	.43	2.94	.004	.31
Borderline Personality^{TR}	.64	1.62	-.07	-0.40	.69	-.04
Aggression (BPAQ^{TR})	2.87	1.44	.29	2.00	.05	.22
Self-Esteem^{REF}	-2.42	1.58	-.24	-1.53	.13	-.17
vNA	-0.31	0.30	-.11	-1.03	.30	-.11

$$R^2_{inc} = .20$$
$$F_{inc}\ (7,\ 82) = 2.98,\ p = .01$$

$$R = .46;\ R^2 = .21$$
$$F\ (9,\ 82) = 2.44,\ p = .02$$

Note. $N = 92$

Table V28

Summary of sequential regression analysis for predicting self-reported violent behaviour (MCMI as the measure of narcissism in expanded model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	1.04	1.16	.10	0.90	.37	.10
MCMI Desirability^{REF}	0.75	1.50	.05	0.50	.62	.05

$$R = .10;\ R^2 = .01$$
$$F_{inc}\ (2,\ 89) = 0.46,\ p = .64$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS^{TR}	2.66	1.20	.25	2.22	.03	.24
MCMI Desirability^{REF}	0.72	2.19	.05	0.33	.74	.04
Self-Complexity (NEG -SC^{TR})	-2.98	3.79	-.09	-0.79	.43	-.09
Narcissism (MCMI)	-0.14	0.26	-.06	-0.53	.60	-.06
Antisocial Personality	0.77	0.29	.40	2.71	.01	.29
Borderline Personality^{TR}	-0.62	1.65	-.07	-0.38	.71	-.04
Aggression (BPAQ^{TR})	2.36	1.42	.24	1.67	.10	.18
Self-Esteem^{REF}	-2.20	1.60	-.22	-1.38	.17	-.15
vNA	-0.28	0.30	-.10	-0.93	.36	-.10

$$R^2_{inc} = .18$$
$$F_{inc}\ (7,\ 82) = 2.61,\ p = .02$$

$$R = .44;\ R^2 = .19$$
$$F\ (9,\ 82) = 2.14,\ p = .04$$

Note. $N = 92$

Table V29

Summary of sequential regression analysis for predicting total number of violent convictions (NPI as the measure of narcissism in expanded model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	0.05	0.11	.05	0.46	.65	.05
MCMI Desirability[REF]	0.11	0.14	.09	0.82	.41	.08

$R = .09;\ R^2 = .01$

$F_{inc}\ (2, 93) = 0.38,\ p = .68$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS[TR]	0.13	0.11	.13	1.16	.25	.12
MCMI Desirability[REF]	0.29	0.19	.23	1.50	.14	.16
Self-Complexity (NEG -SC[TR])	0.40	0.33	.13	1.22	.23	.13
Narcissism (NPI)	-0.01	0.02	-.03	-0.27	.79	-.03
Antisocial Personality	0.08	0.03	.46	3.14	<.01	.32
Borderline Personality[TR]	-0.26	0.15	-.31	-1.77	.08	-.19
Aggression (BPAQ[TR])	-0.26	0.13	-.28	-1.98	.05	-.21
Self-Esteem[REF]	0.01	0.15	.01	0.06	.95	.01
vNA	<.01	0.03	-.02	-0.16	.87	-.02

$R^2_{inc} = .15$

$F_{inc}\ (7, 86) = 2.18,\ p = .04$

$R = .40;\ R^2 = .16$

$F\ (9, 86) = 1.79,\ p = .08$

Note. $N = 96$

Table V30

Summary of sequential regression analysis for predicting total number of violent convictions (MCMI as the measure of narcissism in expanded model)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	0.05	0.11	.05	0.46	.65	.05
MCMI Desirability[REF]	0.11	0.14	.09	0.82	.41	.08

$$R = .09;\ R^2 = .01$$
$$F_{inc}\ (2,\ 93) = 0.38,\ p = .68$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS[TR]	0.17	0.11	.17	1.57	.12	.17
MCMI Desirability[REF]	0.12	0.20	.10	0.62	.53	.07
Self-Complexity (NEG -SC[TR])	0.45	0.32	.15	1.40	.16	.15
Narcissism (MCMI)	-0.05	0.02	-.26	-2.33	.02	-.24
Antisocial Personality	0.09	0.02	.49	3.45	.001	.35
Borderline Personality[TR]	-0.22	.15	-.26	-1.52	.13	-.16
Aggression (BPAQ[TR])	-0.23	0.12	-.25	-1.85	.07	-.20
Self-Esteem[REF]	-0.02	0.14	-.02	-0.11	.92	-.01
vNA	-0.01	0.03	-.04	-0.40	.69	-.04

$$R^2_{inc} = .20$$
$$F_{inc}\ (7,\ 86) = 3.08,\ p = .01$$

$$R = .46;\ R^2 = .21$$
$$F\ (9,\ 86) = 2.50,\ p = .01$$

Note. $N = 96$

Table V31

Summary of results of regression analyses using negative self-complexity

REGRESS TABLE #	DV	MEASURE OF NARCISSISM	MODEL R	SIG IVS	$R_{partial}$
Testing Interaction					
1	AO	NPI	.42**	MCMI-Des	.21
				Neg S.C.	.24
2	AO	MCMI	.40**	MCMI-Des	.20
				Neg S.C.	.25
3	SR	NPI	.16		
4	SR	MCMI	.14		
5	OR	NPI	.16		
6	OR	MCMI	.28	MCMI-Narc	-.22
Larger model					
7	AO	NPI	.61**	BPAQ	.45
8	AO	MCMI	.61**	BPAQ	.46
9	SR	NPI	.46*	PDS	.27
				APD	.31
				BPAQ	.22
10	SR	MCMI	.44*	PDS	.24
				APD	.29
11	OR	NPI	.40*	APD	.32
				BPAQ	-.21
12	OR	MCMI	.46**	MCMI-Narc	-.24
				BPAQ [a]	-.20

[a] $p < .06$; * $p < .05$; ** $p < .01$

APPENDIX W
Regression Analyses without the BPAQ

This appendix contains two sequential regression analyses with Acting-out^{TR} as the dependent variable (one including the NPI and one including the MCMI as the measure of narcissism). See Tables W1 and W2, respectively for summaries of the analyses. The regression analyses presented in Tables W1 and W2 are parallel to Tables 5.36 and 5.37 in the main text except that the independent variable, BPAQ^{TR}, has been excluded in order to more fully examine the impact of personality variables on this dependent variable.

The exclusion of the BPAQ^{TR} from these models decreased the contribution of Step 2 to the multiple correlations and decreased the overall models' multiple correlations somewhat although both remained statistically significant. Additionally, the beta weight of self-complexity approached significance in the NPI model and was significant at $p < .05$ in the MCMI Narcissism model when the BPAQ^{TR} was excluded.

Table W1

Summary of sequential regression analysis for predicting Acting-out[TR] (BPAQ excluded, NPI as the measure of narcissism)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	-0.11	0.10	-.12	-1.14	.26	-.12
MCMI Desirability[REF]	0.31	0.13	.25	2.44	.02	.24

$$R = ..30;\ R^2 = .09$$
$$F_{inc}\ (2,\ 93) = 4.42,\ p = .015$$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS[TR]	-0.03	0.10	-.03	-0.31	.76	-.03
MCMI Desirability[REF]	0.17	0.18	.14	0.94	.35	.10
Self-Complexity[TR]	0.70	0.37	.19	1.91	.059	.20
Narcissism (NPI)	0.02	0.02	.10	0.91	.37	.10
Antisocial Personality	0.04	0.02	.20	1.45	.15	.15
Borderline Personality[TR]	0.04	0.14	.05	0.32	.75	.03
Aggression (BPAQ[TR])	*EXCLUDED FROM ANALYSIS*					
Self-Esteem[REF]	0.03	0.13	.03	0.23	.82	.02
vNA	0.01	0.02	.06	0.55	.58	.06

$$R^2_{inc} = .13$$
$$F_{inc}\ (6,\ 87) = 2.33,\ p = .04$$

$$R = .46;\ R^2 = .21$$
$$F\ (8,\ 87) = 2.94,\ p = .006$$

Note. $N = 96$

Table W2

Summary of sequential regression analysis for predicting Acting-out^{TR} (BPAQ^{TR} excluded, MCMI as the measure of narcissism)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS^{TR}	2.18	0.49	-.12	-1.14	.26	-.12
MCMI Desirability^{REF}	0.31	0.13	.25	2.44	.02	.24

$R = .30;\ R^2 = .09$

F_{inc} (2, 93) = 4.42, p = .015

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS^{TR}	-0.01	0.10	-.02	-0.14	.89	-.02
MCMI Desirability^{REF}	0.16	0.19	.12	0.82	.41	.09
Self-Complexity^{TR}	0.73	0.37	.20	2.00	.049	.21
Narcissism (MCMI-5)	0.01	0.02	.04	0.35	.73	.04
Antisocial Personality	0.04	0.02	.22	1.62	.11	.17
Borderline Personality^{TR}	0.05	0.14	.06	0.35	.73	.04
Aggression (BPAQ^{TR})			*EXCLUDED FROM ANALYSIS*			
Self-Esteem^{REF}	0.03	0.13	.03	0.21	.84	.02
vNA	0.01	0.02	.06	0.55	.59	.06

$R^2_{inc} = .12$

F_{inc} (6, 87) = 2.19, p = .051

$R = .46;\ R^2 = .21$

F (8, 87) = 2.83, p = .008

Note. $N = 96$

APPENDIX X
Regression Including Ethnicity as an Independent Variable

This appendix contains two sequential regression analyses. The two analyses are the same as the analyses reported in Tables 5.38 and 5.39 in the main text except they include the dichotomous variable "Ethnicity: Caucasian/Aboriginal" as an additional independent variable in the Step 1. These analyses were performed to explore the impact of ethnicity on this model which includes both independent (APD; NAV) and dependent variables (SRBEH) that were significantly different between Caucasian and Aboriginal participants. The "Ethnicity" variable was coded 1 for Caucasian and 2 for Aboriginal and Métis. See Tables X1 and X2 for a summary of the results. Because the ethnicity variable used only Aboriginal and Caucasian participants (excluding those who reported their ethnicity as something other than Aboriginal or Caucasian), the sample size for these two analyses is smaller than the sample size of the original two analyses in the main text.

In both models, the ethnicity variable accounted for a significant proportion of variance in the dependent variable, Self-reported Violent Behaviour. Including "Ethnicity" did not improve the predictive ability of the model as a whole. When the NPI was the measure of narcissism, the overall model with ethnicity included resulted in $r = .49$ and the overall model without ethnicity resulted in $r = .45$. When the MCMI-III Narcissism scale was the measure of narcissism, the overall model with the ethnicity variable included resulted in $r = .47$ and the overall model without the ethnicity variable resulted in $r = .43$. The addition of this independent variable in the Step 1 reduced the contribution of Step 2 to below significance. This suggests that differences in self

reported violent behaviour are more strongly related to ethnicity than to personality,

self-esteem or aggression.

Table X1

Summary of sequential regression analysis for predicting self-reported violent behaviour including "ethnicity" (NPI as measure of narcissism)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	.93	1.14	.09	0.81	.42	.09
MCMI Desirability[REF]	1.08	1.45	.08	0.74	.46	.08
Ethnicity: Caucasian/Aboriginal	7.21	2.24	.34	3.22	.002	.34
					$R = .36; R^2 = .13$	
					$F_{inc}\ (3, 82) = 3.96, p = .011$	
Step 2						
PDS[TR]	2.54	1.29	.24	1.96	.053	.22
MCMI Desirability[REF]	0.69	2.10	.05	0.33	.74	.04
Ethnicity: Caucasian/Aboriginal	5.11	2.44	.24	2.09	.04	.24
Self-Complexity[TR]	-2.82	4.72	-.06	-0.60	.55	-.07
Narcissism (NPI)	-0.32	0.23	-.17	-1.44	.16	-.16
Antisocial Personality	0.65	0.30	.34	2.15	.04	.24
Borderline Personality[TR]	-0.94	1.64	-.10	-0.57	.57	-.07
Aggression (BPAQ[TR])	2.36	1.46	.24	1.62	.11	.18
Self-Esteem[REF]	-2.02	1.62	-.20	-1.25	.22	-.14
vNA	-0.04	0.32	-.01	-0.11	.91	-.01
					$R^2_{inc} = .11$	
					$F_{inc}\ (7, 75) = 1.54, p = .17$	
					$R = .49; R^2 = .24$	
					$F\ (10,75) = 2.32, p = .019$	

Note: $N = 86$

Table X2

Summary of sequential regression analysis for variables predicting self-reported violent behaviour including "ethnicity" (MCMI as measure of narcissism)

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 1						
PDS[TR]	0.93	1.14	.09	0.81	.42	.09
MCMI Desirability[REF]	1.08	1.45	.08	0.74	.46	.08
Ethnicity: Caucasian/Aboriginal	7.21	2.24	.34	3.22	.002	.34

$R = .36; R^2 = .13$
$F_{inc}\ (3,\ 82) = 3.96, p = .011$

VARIABLE	B	$SE\ B$	β	t	p	$R_{partial}$
Step 2						
PDS[TR]	2.00	1.25	.18	1.60	.11	.18
MCMI Desirability[REF]	1.10	2.24	.08	0.49	.62	.06
Ethnicity: Caucasian/Aboriginal	5.65	2.49	.27	2.27	.03	.25
Self-Complexity[TR]	-3.49	4.77	-.08	-0.73	.47	-.08
Narcissism (MCMI-5)	-0.12	0.29	-.05	-0.42	.68	-.05
Antisocial Personality	0.55	0.30	.28	1.84	.07	.21
Borderline Personality[TR]	-0.90	1.68	-.10	-0.54	.59	-.06
Aggression (BPAQ[TR])	1.97	1.46	.20	1.35	.18	.15
Self-Esteem[REF]	-1.78	1.63	-.18	-1.09	.28	-.12
vNA	0.02	0.32	.01	0.06	.95	.01

$R^2_{inc} = .09$
$F_{inc}\ (7,\ 75) = 1.24, p = .29$

$R = .47; R^2 = .22$
$F\ (10,75) = 2.08, p = .04$

Note. $N = 86$

APPENDIX Y
Exploratory analyses of the Role of the BPAQ in Predicting Number of Violent Convictions

To explore possible explanations for the reversed role of the BPAQ in predicting the total number of violent convictions compared to the other two dependent variables (Acting-out and self reported violent behaviour), inter-correlations with third variables such as age and sentence length were examined and a 2 x 2 ANOVA was performed between APD and BPAQ with total number of violent convictions as the dependent variable.

Y.1 Correlational Analyses

The $BPAQ^{TR}$ and APD were correlated, $r = .42$, $p < .001$ ($r = .52$, $p < .001$, zero-order). Table Y1 displays the correlations of these two variables with several other variables related to aggression and acting-out.

Y.2. ANCOVA: APD by BPAQ on Total Number of Violent Convictions

A median split was obtained on the BPAQ and the MCMI-III Antisocial scale and a two-way ANCOVA was performed to examine whether there is a significant interaction between aggression ($BPAQ^{TR}$) and antisocial personality (APD) in predicting the dependent variable, total number of violent convictions ($ORBEH^{TR}$), once the effects of socially desirable responding were controlled for.

Levene's test for equality of error variances was non-significant. There were no significant main effects for either the $BPAQ^{TR}$ or APD and the interaction term was also not significant. See Table Y2 for a summary of the results of this analysis.

Table Y1

Correlations with BPAQ^{TR} and APD

	BPAQ^{TR}	APD
ORBEH^{TR}	-.15	.17
	-.09	.17
SRBEH^{TR}	.22*	.36**
	.19	.30**
Acting-out^{TR}	.55**	.28**
	.61**	.36**
Age	-.31**	-.25*
	-.28*	-.24*
Tot Sentence Length	-.25*	-.16
	-.21*	-.14
Incarceration (m)		
Current	-.38**	-.34**
	-.34**	-.31**
Total time	-.40**	-.39**
	-.39**	-.40**

Note. Partial correlations controlling for social desirability (MCMI-Y; PDS) are presented in top row; zero-order correlations in the bottom row.

Note. N = 96 except analyses involving SRBEH^{TR}, N = 92.

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

Table Y2

Summary of ANCOVA: APD and BPAQ^{TR} predicting total number of violent convictions (ORBEH^{TR}), controlling for PDS^{TR} and MCMI-Y^{REF}

	F	p
BPAQ Main Effect	0.39	.53
APD Main Effect	2.42	.12
Interaction (BPAQ x APD)	0.58	.45

Note. N = 92

APPENDIX Z
Correlations of Key Variables with Subscales of the PDS

The two subscales of the PDS, Impression Management and Self-Deceptive Enhancement were correlated with each other ($r = .32$, $p = .001$). They were also strongly correlated with the Total PDS score ($r = .83$, $p < .001$ for Impression Management and $r = .74$, $p < .001$ for Self-Deceptive Enhancement). Table Z1 shows the correlations of each of the subscales with several of the key variables. MCMI-Narcissism, self-esteem[REF] and self-reported violence (SRBEH[TR]) show a stronger relationship with Self-Deceptive Enhancement than with Impression Management. Acting-out, BPAQ and MCMI-Borderline show the opposite pattern, with a stronger relationship to Impression Management than to Self-Deceptive Enhancement.

Table Z1

Correlations of key variables with PDS subscales

	Total TR	PDS Impression Management	Self-Deceptive Enhancement
NPI	.17	.03	.18
MCMI-Narcissism	.15	.003	.23*
MCMI-Antisocial	-.38**	-.41**	-.26*
MCMI-Borderline TR	-.27**	-.29**	-.19
BPAQ TR	-.23*	-.32**	-.12
Self-Complexity TR	-.16	-.16	-.20
Self-Esteem REF	-.16	-.05	-.26*
vPositive Affect	-.16	-.14	-.13
vNegative Affect	.06	.07	.03
vAnger	-.03	-.03	-.12
Acting-out TR	-.17	-.26*	-.14
SRBEH TR	.09	-.07	.21*

Note. N = 96 except analyses involving SRBEH[TR], N = 92.

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

Sample Consent Form

You are invited to participate in a study called "Personality and Behaviour". Please read this form carefully, and feel free to ask questions you might have.

Researcher: Tarah Hook   **Supervisor:** Dr. Steve Wormith
                  Graduate Student   Forensic Psychology Chair
                  Department of Psychology   Department of Psychology
                  University of Saskatchewan   University of Saskatchewan
                                                     9 Campus Drive, Saskatoon, SK

Purpose and Procedure: This study is part of a larger study that looks at if a person's violence is related to his personality and how he thinks of himself. In this part of the study, the researcher is interested in how people describe themselves. If you choose to participate, you will be asked to complete a self-description task that involves sorting cards into groups.

Potential Risks: Your participation in this study may give you a chance to understand your self-concept better and people generally find the self-description task meaningful and interesting. Potential benefits to society include gaining a better understanding of the factors associated with aggression. It may also suggest ways in which aggressive individuals may be better helped to control their behaviour.

If you become tired while completing the study, you will be invited to take rest periods as needed. If you find the task upsetting in any way you are welcome to stop and you may choose to discuss your feelings with a member of your treatment team.

Confidentiality: The information you provide will be treated in a confidential manner. This means that your responses will **not** be shared with staff at the Regional Psychiatric Center (including the parole board, nurses, psychologists). Personal information will be seen only by the researcher and her supervisor. All information will be coded with a project number, not your FPS number. All information will be stored for at least 5 years, without any identifying information, at the University of Saskatchewan in a secure location.

Right to Withdraw: You may withdraw from the study for any reason, at any time, without penalty of any sort and without any effect on your treatment or sentence within Correctional Services Canada. If you withdraw from the study at any time, any data that you have contributed will be removed from the study with no penalty to yourself.

Questions: If you have any questions concerning this study, please feel free to ask at any point; you are free to contact the researchers at the address provided above if you have any questions at a later time. This study has been approved on ethical grounds by the University of Saskatchewan Behavioural Sciences Research Ethics Board on February 02, 2005 and the Regional Psychiatric Center Ethics Review Board on March

07, 2005. Any questions regarding your rights as a participant may be addressed to that committee through the Office of Research Services (966-2084).

Consent to Participate: I have read and understood the description provided above; I have been provided with an opportunity to ask questions and my questions have been answered satisfactorily. I consent to participate in the study described above, understanding that I may withdraw this consent at any time. A copy of this consent form has been given to me for my records.

_____   _____
Signature of participant   Date

_____
Signature of researcher