

Female offending and the question of gender specificity

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ABSTRACT

This thesis aims to present an examination of the issue of gender specificity and how it applies to understanding female offending. For several decades, a debate has existed in the literature between two fields, the feminist criminological and 'risk-need-responsivity' camps, regarding the most appropriate way to assess and treat female offenders. A systematic review in chapter two examined factors associated with risk for reoffending in females. It demonstrated that while traditional approaches are adequate in predicting risk for recidivism, they do not appear to fully incorporate the complex presentation of females who offend. An empirical research project examining gender differences in violence subtypes in inpatients demonstrated that females who are instrumentally violent present with the most treatment needs in terms of history of victimisation and mental health needs. However, similarities are also noted between genders, with personality disorders being most predictive of instrumental violence in both males and females. Chapter four presents a critique of the Levenson Self Report Psychopathy scale (LSPS) which was utilised to help delineate gender differences in violent subtypes and is commonly used to assess self-reported traits for psychopathy. The review indicated that the LSPS may offer a reliable and valid way to assess traits associated with psychopathy. However, it is also noted that mixed findings regarding factor structure and potential gender issues suggest that tool should be used with some caveats in place. Results indicate that in the search for understanding gender differences in offending, an exploration regarding the expression of psychopathy and personality disorders across genders is integral. It is evident that the time has come to move beyond the gender specificity debate to work towards a more integrated approach to assessing and managing females who offend.

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CHAPTER ONE: INTRODUCTION

“...women have always been considered as strange, secretive and sometimes dangerous. Men have always tried to understand them and have generally failed...” (p. 149, Pollak, 1950)

Undeniably, fewer females than males come into contact with the criminal justice system each year. However, statistics suggest that number of females being sentenced in England and Wales is increasing more rapidly than is being seen with male offenders (12% rise versus a 3% rise; Ministry of Justice, 2009). Whether this shift in offending reflects an actual increase in crime or changes in the conviction and monitoring of female offenders is debated (Kruttschnitt, Gartner, & Hussemann, 2008; Lauritsen, Heimer, & Lynch, 2009). In 2012, female offenders made up 5% (N = 4,145) of the 86,364 overall prison population in England and Wales (Table A1.2, Ministry of Justice, 2012), most often serving sentences of one to four years, followed by sentences of four years or more (Table A1.1, Ministry of Justice, 2012). Of those females who were serving sentences in 2012, the most common offences were for violent crimes against a person (most often wounding, 41.2% and murder, 24.3%), accounting for 27.4% of female offenders, followed closely by drug offences (16.6%), and theft and handling offences (14.6%, Ministry of Justice, 2012). Notably, while these numbers are smaller than those found with male offenders, the proportions are similar (Ministry of Justice, 2012) suggesting parallels in relative ratios between offenders. Thus, despite there being overall fewer women committing violent offences (Ministry of Justice, 2009), their offending patterns and prevalence indicate a persistent level of risk to the community and an on-going impact to the criminal justice system.

The Nature of Female Violence

On the whole, women commit less crime than men and this crime is less likely to be violent (Becker & McCorkel, 2011). Furthermore, it has been argued that societal expectations regarding the role of women have led to differential treatment within the criminal justice system, thus affecting rates of conviction and severity of sentencing (Lloyd, 1995). Arising from these differences, it has been questioned whether the function and expression of violence between males and females differs,

which is important to consider when identifying risk management issues (Daffern & Howells, 2007; Vitacco et al., 2009).

Studies utilising national offence data in the United States (FBI National Incident-Based Reporting System data - NIBRS) have shown that males were 1.5 times more likely than females to be involved in lethal violence (Weaver et al., 2004) and women were less likely than men to use weapons (Miller, 1998). Use of the same NIBRS data from 1998 indicated that lethal violence in females was more likely to be directed towards intimate partners and/or spouses, while men were more likely to murder acquaintances (Koons-Witt & Schram, 2003). When females were violent, they were more likely to be offending on their own, and this was most likely to be an assaultive offence (Koons-Witt & Schram, 2003). Furthermore, women were more likely to use guns when committing crimes with males, and were more likely to use knives when committing crimes on their own (Koons-Witt & Schram, 2003). Similarly, in a large scale American study examining 41,877 adolescent murderers across thirty years, females were more likely than males to commit murder with a knife and have a closer relationship with the victim (Heide, Roe-Sepowitz, Solomon, & Chan, 2012).

A number of theories have been suggested to account for these differences in female aggression within the criminological and psychological literature, with little consensus reached as to the true aetiology of this disparity (Becker & McCorkel, 2011). Some scholars have pointed to the motivation behind aggression in order to explain differences between genders, or the role of a male co-offender in violence (Koons-Witt & Schram, 2003). Traditionally, women's violence was viewed in response to problems such as victimisation and self-defence (usually within a domestic sphere). However, it has been suggested that these views are too narrow in their focus, relying heavily on a feminist view of offending. Furthermore, it has been shown that women also commit violence for many of the same reasons males do: money, power and reparation (Kruttschnitt & Carbone-Lopez, 2006). Certainly, there are a plethora of theories regarding the origin and maintenance of crime (McGuire, 2004). The following section will briefly review several theories that specifically address gender differences in offending so as to place this thesis in a broader context.

Theoretical Perspectives of Female Offending

Early Theories

In the late nineteenth and early twentieth century, female crime was often considered an anomaly within the wider context of male theories of crime, relying heavily on biological determinants to explain criminal behaviour (Steffensmeier & Schwartz, 2004). For instance, Lombroso argued that, biologically, female criminals were more similar to male criminals than they were to 'normal' females (in regards to brain size and other physiological characteristics; Lombroso & Ferrero, 1895). This concept that the female criminal was suffering from 'masculinity' was also echoed by Freud (1933), who thought unresolved penis envy lead to an over identification with males and resulting criminal behaviour (Steffensmeier & Schwartz, 2004). Even earlier contemplation was also given to role of hormones and resulting occurrences of pregnancy and menstruation upon women's "criminal lunacy" (e.g., Baker, 1902, p. 13). Thus it is evident that early approaches to understanding female offending focused almost exclusively on delineating females from males and using these distinctions as a basis to explain the origins of criminal behaviour in women.

Utilising a more cohesive approach and beginning to steer away from relying solely on biological determinisms, in his book *The Criminality of Women*, Pollak (1950) theorised that female crime arose from a combination of biological, psychological and societal factors. Pollak suggested that female criminality was as common as male criminality in many ways, just harder to see behind a "mask" of deception. Perhaps most intriguing about his work (especially considering the era from which it was written), is the emphasis he placed on psychosocial factors in explaining crime, such as family environment, parenting and difficulties in school, arguing that ultimately "this picture was the same for boys and girls" (Pollak, 1950, p.139).

The Feminist Approach

A feminist approach to understanding gender differences in crime emerged in the 1960s and 1970s. This movement was distinct from earlier theories that focused on biological determinants as

sources of crime, instead taking a broad, macro-level approach by examining crime as a societal process¹.

Sociologists and criminologists proposed that as a result of female emancipation at the time, women experienced greater economic distress and increased inner-city disorganisation, as well as an increased opportunity for female-type crimes, such as fraud (Steffensmeier & Schwartz, 2004). Furthermore, advances in gender equality led to a greater tendency of courts to prosecute women (Steffensmeier & Allan, 1996). Seemingly, the social construct of the female at this time, became a primary explanatory factor in understanding female crime (Morash, 2009), with less emphasis placed on individual, psychological factors. However, these views have been challenged on the grounds that they are limited and rely too heavily on a feminist, patriarchal view of offending (Kruttschnitt & Carbone-Lopez, 2006). Furthermore, it has been suggested that these theories do not adequately explain all observed differences in criminal activity, in which gender is only one part of a constellation of factors (Gavigan, 1993; Steffensmeier & Allan, 1996). Additionally, these theories have been criticised for being too narrow in their focus, using incomplete samples or neglecting to cover a range of both gender specific and gender neutral factors (Belknap & Holsinger, 2006).

Central to the feminist theory of offending are two main points: that differences must exist between genders because females commit less crime than men (called the gender ratio problem), as well as concerns regarding the generalisability of “male” theories of offending to explain female crime (McGuire, 2004). As such, feminist theory seeks to differentiate female offenders from the life experiences of male offenders (Becker & McCorkel, 2011). Arising from the feminist criminological orientation, pathway research (Belknap & Holsinger, 2006; Daly, 1992; Reisig, Holtfreter, & Morash, 2006) has highlighted the unique ‘gendered’ experiences of female offenders. Much of the gendered research places emphasis on the impact of victimisation, poverty and mental health upon female criminal offending. It has been proposed that these differences represent specific criminogenic needs

¹ Also falling under this macro approach at this time were strain and control theories as explanations of offending, which saw crime resulting from competition and pursuit of material goals from competing societal groups (McGuire, 2004). While some feminist scholars have utilised these theories, they are generally not adopted by the feminist criminologists, and as such are considered outside the scope of this review.

that differ from those commonly found in males (Caulfield, 2010), meaning there should be a shift of focus from gender neutral factors (those commonly found on 'traditional' risk assessments) to factors that are gender responsive (also known as gender specific). As such, it has been argued that assessing risk for offending in females should be based upon gender specific risk factors, drawn from samples of female offenders (Blanchette, 2004). Furthermore, it has been argued that even risk factors not specific to women (e.g., mental health, finances) should be considered within contextual terms for each gender (Van Voorhis, Wright, Salisbury, & Bauman, 2010).

In attempting to identify unique female pathways to offending, Daly (1992) utilised qualitative methods and reported five distinct gendered pathways: a) street woman, who was fleeing an abusive home situation, b) drug-connected woman who had a pattern of using/trafficking drugs, usually within the context of an intimate relationship, c) harmed and harming woman who had experienced extreme abuse as a child who now presented with chronic hostility and violence, d) battered woman who was in a violent relationship and engaged in crime as part of this dynamic and e) other woman, who followed a purely economic pathway motivated to offend by a desire for money. These pathways have been frequently discussed by feminist research as evidence for gendered pathways to offending, however, few studies have offered further empirical evaluation of these categories.

Using Daly's pathways (1992), Reisig, Holtfreter and Morash (2006) examined the predictive validity of a gender neutral risk assessment across these pathways. Notably, a gender neutral risk assessment was only predictive for women in the economically motivated pathway which was argued by the authors to be a less gendered pathway compared to others (due to lack of victimisation and mental health issues; Reisig et al., 2006). Markedly, the gender neutral risk assessment for the economic pathway accounted for three times the variance (Nagelkerke $R^2 = .27$) compared to its predictive value for the remaining pathways (Nagelkerke $R^2 = .09$). Furthermore, misclassification was also evident with both over and under classification occurring for varying risk levels. These results suggest that gender neutral risk assessments do not perform uniformly across subgroups of female offenders.

With a large sample of 718 female incarcerated felons, Brennan and colleagues (2012) examined gender specific and gender neutral factors and how they fit into offence pathways of females (Brennan, Breitenbach, Dieterich, Salisbury, & Van Voorhis, 2012). Path analysis resulted in four primary pathways: a normal female offender characterised by few risk factors and a minor history of drug and property offence, the battered offender (considered akin to Daly's battered offender) presenting with a history of abuse and an antisocial partner, the poor subcultural/socialised offender who has fewer risk factors and is usually connected to drug trafficking and the antisocial damaged offender (who is similar to Daly's harmed and harming offending), characterised by a large number of risk factors such as severe childhood abuse, homelessness, highly antisocial personality and mental health problems. Of relevance, the pathways were characterised by a complex mix of both gender specific (e.g., abuse) and gender neutral factors (e.g., antisocial personality), indicating the importance of either type of factor in understanding female offending (Brennan et al., 2012).

Cognitive Social Learning Theory

The Cognitive Social Learning Theory can be considered one of the most current influential approaches to understanding criminal behaviour (McGuire, 2004). In contrast to the macro approach of feminist theory, this model seeks to focus on individual thoughts, feelings and attitudes of the offender, and the interaction of these with their environment. The origins of this theory can be traced back to the 1960s - 70s with the emergence of social learning theory (Bandura, 1977; Berkowitz, 1962). This theory posited that people learn through direct and indirect experiences such as conditioning (via rewards and punishments) or observational learning. As such, an individual's learning occurs in a social context, from family members, friends and interactions with the wider social world. This theory quickly incorporated a cognitive aspect of learning, in which an individual's own thoughts, evaluation and appraisal impact upon their learning and subsequent behaviours. As such, the complex interaction between thoughts, feelings and behaviours began to emerge as a guiding framework (cognitive social learning theory) for understanding human behaviour (Andrews & Bonta, 2010; McGuire, 2004)

Emerging from this framework was the General Personality and Cognitive Social Learning (GPCSL) model, proposed as a way to understand criminal behaviour (Andrews & Bonta, 2010; Andrews, Bonta, & Hoge, 1990). According to this model, variations in the criminal conduct of an individual are based upon an appraisal of rewards and costs that may (or may not) encourage criminal activity. The evaluation of potential rewards and costs of the activity are influenced by interpersonal factors such as family, school, work attachments, modelling of criminal activity from delinquent peers or family members and the attitudes, feelings and beliefs towards antisocial activity. Within this model, it is postulated that these personal, interpersonal and environmental factors may occur in the much broader context of social, political and cultural influences, but these are secondary due to their distal nature. As such, they are assumed to not account directly for individual variations in criminal activity (Andrews & Bonta, 2010). Similarly, factors such as gender, age, ethnicity and social class are also considered secondary, instead exerting their influence through the primary psychosocial GPSCL factors discussed above (Andrews & Bonta, 2010).

As such, an individual within an immediate situation engages in a criminal activity based upon several factors including characteristics of the situation (e.g., victim access), emotional states (e.g., anger), attitudes, values and personality of the individual (e.g., pro-criminal attitudes) and social support for the criminal activity (perceived or direct). Ultimately, the situation varies based upon how the individual cognitively appraises the situation and their resulting self-regulation (Andrews & Bonta, 2010). Thus, the GPCSL model postulates an integrated way to understand all human behaviour, including criminal activity, acknowledging the complex and highly variable nature of any action.

Notably, the GPCSL model (and risk-need-responsivity framework, which will be discussed below) takes a gender neutral approach in that factors related to offending are thought to be the same for males and females. In this approach, interpretations of events and subsequent self-regulation efforts are influenced by specific factors, most importantly the “big four” risk factors: antisocial peers, criminal attitudes, antisocial personality and history of criminal activity, plus the “modest four”: school/work, substance abuse, family/marital and leisure/recreation, together which are considered the

“central eight” (Andrews & Bonta, 2010). Proponents of the gender neutral approach argue that factors such as these are well supported by empirical evidence (Bonta, Law, & Hanson, 1998; Dowden, 1998; Gendreau, Little, & Goggin, 1996; Glueck & Glueck, 1950) and are equally predictive for females as they are for males for risk of offending. Furthermore, these factors represent relevant criminogenic needs for both genders, which should be assessed to evaluate risk (research regarding gender neutral factors will be more thoroughly reviewed in chapter two), as well as targeted by rehabilitation programs.

Arising from the GPCSL approach to understanding criminal activity, the Risk Need Responsivity (RNR) framework currently guides correctional assessment and rehabilitation in prison systems across North America, Europe and Australia (National Corrections Institute, 2004; Raynor, 2007; Rettinger & Andrews, 2010). This model dictates that effective offender rehabilitation must adhere to several guiding principles: 1) that intensity of service should increase as an individual's level of risk increases, 2) criminogenic needs are the most appropriate targets of programming in reducing recidivism, and 3) service providers should deliver programmes that are evidence-based (general responsivity) and take into account individuals' personal characteristics and circumstances that affect the effectiveness of treatment (specific responsivity). Additionally, treatment delivered should be appropriate according to ethical, humanitarian, cost-efficiency and clinical standards.

There is a substantial body of literature which demonstrates support for these RNR tenets in offering the most effective forms of offender programming, in both males and females to reduce future criminal behaviour (Andrews et al., 2011; Andrews & Dowden, 2006; Andrews & Bonta, 2010; Dowden & Andrews, 1999; Hanson, Bourgon, Helmus, & Hodgson, 2009; Raynor, 2007; Smith, Gendreau, & Swartz, 2009; Vitopoulos, Peterson-Badali, & Skilling, 2012) and, as such, it can be argued that they possess empirical clout which outweighs the feminist argument. However, the RNR model has been criticised for being overly mechanical and reductionistic, only focusing on individual criminogenic needs and thus missing opportunities for a more positive focus on individual fulfilment (Ward & Stewart, 2003; Ward, Rose, & Willis, 2012). This includes a lack of focus on strengths in offender rehabilitation, which may ultimately better motivate the offender to engage openly with

interventions (Ward et al., 2012). The entire RNR/GPCSL theory has also been accused of being overly complex in many areas (e.g., underlying theory), but lacking explanatory depth in others (e.g., the responsivity principle; Polaschek, 2012). Furthermore, while the 'central eight' risk factors are empirically well established to be correlated with offending, it has been suggested that a true causal role between factors and offending, including their relationship to one another is not fully explained (Mann, Hanson, & Thornton, 2010; Polaschek, 2012).

Integral to this model, and the source of the gender specificity debate, is the definition of a risk factor including the role of criminogenic versus non-criminogenic factors in offender rehabilitation. According to GPCSL and RNR models, a risk factor is defined as any personal or situational characteristic which increases an individual's chance of engaging in criminal activity. Similarly, a criminogenic need is a dynamic risk factor whose fluctuation directly influences the probability of engaging in criminal activity and should be targeted by offender rehabilitation programs. This is contrasted against a non-criminogenic need which, according to research, has not been shown to be connected to an individual's likelihood of reoffending. Undeniably, the reduction of a non-criminogenic factor may improve the overall functioning of an offender (e.g., personal and social needs such as abuse history or specific mental health needs). However, if it has no direct connection to recidivism, it should not be the primary focus of rehabilitation programmes.

Gender and Risk Factors

Thus, the central question is which factors are predictive of female offending, and whether gender responsive factors have a place alongside gender neutral factors. Regardless of theoretical orientation, research into gender differences indicates that males and females differ widely in their experiences as offenders. Female offenders are more likely to suffer from mental health difficulties, have a history of self-harm and present with varying psychosocial factors and recidivism rates compared to male offenders (Collins, 2010; Cortoni, Hanson, & Coache, 2010; Makarios, 2007; MOJ, 2009; Putkonen, Weizmann-Henelius, Lindberg, Rovamo, & Häkkänen-Nyholm, 2011; Vitale, Smith, Brinkley, & Newman, 2002). As feminist scholars have noted, it is the prevalence of abuse and

mental health difficulties in female offenders which they feel challenge their exclusion from risk assessment and rehabilitation programmes.

The prevalence of historical abuse and maltreatment in female offenders far outweighs rates seen within non-offending groups and male prisoners and is often described as a key factor in understanding female offending (Hollin & Palmer, 2006). Research has repeatedly demonstrated disparate rates of maltreatment and abuse in female offenders compared to males (Bonta, Pang, & Wallace-Capretta, 1995; Fickenscher, Lapidus, Silk-Walker, & Becker, 2001; MacSwain & Madelon, 2012; McClellan, Farabee, & Crouch, 1997). Within UK prison populations, women were more likely than men (53% versus 27%) to report having experienced some sort of abuse over their lifetime and this was most likely to be childhood sexual abuse (Williams, Papadopoulou, & Booth, 2012). Similarly, a US Bureau of Justice Survey of female inmates (Snell & Morton, 1994) found that rates of childhood abuse in female prisoners are almost triple that seen in men (31.7% versus 10.7%). Prevalence of abuse in female offenders also far exceeds what is seen in their non-offending counterparts. For instance, violent female offenders displayed rates of childhood physical and sexual abuse that more than doubled (history of physical abuse 42.6% compared to 16.7% and history of sexual abuse 31.1% compared to 13.3%) what was seen in a non-offending comparison sample (Weizmann-Henelius, 2006).

As is seen with rates of abuse in female offenders, women with mental health problems are also vastly over-represented within offending populations for issues such as depression, anxiety, substance abuse and personality disorder (Byrne & Howells, 2002; Corston, 2007; Moloney, van den Bergh, & Moller, 2009; Weizmann-Henelius, 2006). In the United Kingdom, a Ministry of Justice Social Exclusion Task Force study reported that 60% of females who were under Probation Service supervision between 2005 - 2007 presented with mental health difficulties, compared with 36% of males under probation supervision during this same time (2009). These psychological difficulties are perhaps most exemplified by self-harm and attempted suicide, in which rates for females on probation in the UK were three to four times higher than that of males (Social Exclusion Task Force, 2009). Furthermore, British female offenders were five times more likely to exhibit a range of mental health

problems on a screening questionnaire (78%) compared to women in the general population (15%; Plugge, Douglas & Fitzpatrick, 2006). In a survey of Canadian prisoners needs upon admission to custody, 63.2% of females offenders were assessed as having 'considerable difficulties' with personal and emotional functioning compared to 35.7% of males (Motiuk, 1997). Such is the concern regarding women's mental health in prison, that the World Health Organisation has encouraged programs in prison systems that address these issues (Moloney & Moller, 2009). Given the pervasiveness of this factor within female offenders, a clearer understanding of the relationship between mental health and offending is warranted.

The importance of considering history of maltreatment and mental health as risks factors has demonstrated some relevance in understanding female offending. Traditional risk factors such as problems with education, work, peer relationships (van der Knaap, Alberda, Oosterveld, & Born, 2012), criminal associates, carrying a weapon (Benda, 2005) and criminal history (Collins, 2010) have shown a greater relevance in predicting male reoffending compared to that of women. In contrast, factors considered more gender responsive such as emotional well-being (van der Knaap et al., 2012), childhood physical / sexual abuse, and history of suicidal thoughts and behaviours, have shown to predict violent and nonviolent recidivism more readily in female offenders (Benda, 2005). Furthermore, factors that influenced desistance from crime also varied, with satisfying relationships exerting a stronger association with desistance in women, and level of job satisfaction demonstrating more influence on male offenders' length of stay in the community (Benda, 2005). A meta-analysis of 97 effect sizes indicated that both gender neutral factors (e.g., antisocial peers, attitudes, personality and history of violence) and gender specific factors (physical and sexual abuse) were predictive of delinquency in females (Hubbard & Pratt, 2002). These results are significant because while it demonstrates that gender responsive factors (such as history of abuse) are relevant to predicting female offending, it also illustrates the importance of a balance approach, considering both gender neutral and gender responsive factors. Notably, the interplay between gender neutral and gender specific factors is unclear and, at times, factors such as childhood abuse have been shown to be

equally predictive for both male and female offenders without gender exerting any moderating effect (Topitzes, Mersky, & Reynolds, 2012).

Attempts to illustrate the efficacy of a gender responsive approach has demonstrated modest success with the development of specific risk assessments. Inclusion of a gender-responsive supplement (called the 'trailer'), plus protective factors improved the predictive ability of a gender neutral assessment, over a 24-month follow-up in a multi-site study (Van Voorhis et al., 2010). While results confirm that the gender neutral factors are predictive of recidivism in samples of female offenders, the focus does not necessarily need to be on traditional risk factors. In this study, substance abuse, economic/environment and mental health were more important than criminal attitudes and antisocial friends. Furthermore, in the majority of the samples examined in this study, the addition of gender responsive factors (e.g. parental stress, self-efficacy, child abuse and relationship dysfunction) improved the accuracy of gender neutral risk factors (Van Voorhis et al., 2010).

However, results have not always been as conclusive, with mixed results produced from attempts to develop parallel risk scales on males and females (Blanchette, 2005; Funk, 1999). A gender specific classification system designed for the Canadian correctional system demonstrated that factors for women on this scale were similar to the scale developed for men, except that the women's scale retained an item concerning family contact. Furthermore, the men's scale contained items that were not at all predictive for females: drug/alcohol abuse, age, escape history, and psychological concern (Blanchette, 2005). Similarly divergent results were noted in a juvenile probation sample, where risk factors for reoffending in males and females revealed strikingly different regression models. Female reoffending was predicted by a history of person-related crimes, abuse, neglect and running away, while male reoffending was predicted by history of offences, family financial difficulties, poor school behaviour and detention (Funk, 1999). In addition, predictive accuracy for females utilising the 'men's scale' was not as successful as using the female scale on its own (Blanchette, 2005; Funk, 1999). Results suggest that there may be differences between genders which can be potentially overlooked when not examined separately, which may have wider implications for current models of criminal behaviour.

Gender and Personality Disorders/Psychopathy

The presence of personality disorders, in particular antisocial personality disorder (ASPD) and borderline personality disorder (BPD), are highly prevalent in prisoner (Black et al., 2007; Black, Gunter, Loveless, Allen, & Sieleni, 2010) and inpatient populations (Davison, 2002). Personality disorders have been linked to criminal recidivism and serious offending (Walter, Wiesbeck, Dittmann, & Graf, 2011; Warren & Burnette, 2012), even in community samples (Howard, Huband, Duggan, & Mannion, 2008). As such, the determination of gender differences in personality disorders is integral to fully assess risk. Perhaps the most striking gender difference is in terms of diagnosis, with men more likely to be diagnosed with ASPD and females more likely to be diagnosed with BPD (Byrne & Howells, 2002; Paris, 2004; Torgersen, Kringlen, & Cramer, 2001). Research has suggested that these disorders may represent gendered expressions of the same disorder (Beauchaine, Klein, Crowell, Derbidge, & Gatzke-Kopp, 2009; Paris, 1997) or even exemplify a gendered construct of psychopathy (Cale & Lilienfeld, 2002; Warren et al., 2003).

Psychopathy, which has been a robust predictor of violence in men (e.g., Hare, 2003; Hemphill, Hare & Wong, 1998), appears to be a less successful predictor when applied to female offenders (Salekin, Rogers, Ustad, & Sewell, 1998), female inpatients (Schaap, Lammers, & de Vogel, 2009), and even female adolescent offenders (Odgers, 2005), calling into question the presence of underlying gender differences within this concept. Furthermore, there appears to be questions regarding the most appropriate way to measure psychopathy in females (Salekin, Rogers, & Sewell, 1997; Weizmann-Henelius, Putkonen, et al., 2010).

In addition to differences in the predictive value of psychopathy, the traits associated with the disorder have been noted to vary between genders. Females who display psychopathic traits have been found to have links to history of trauma (Blonigen, Sullivan, Hicks, & Patrick, 2012; Weizmann-Henelius, Gronroos, et al., 2010), mental health difficulties such as psychiatric admission to hospital (Cook, Barese, & Dicaldo, 2010), internalising behaviours such as depression and anxiety (Vitale et al., 2002; Weizmann-Henelius, Viemero, & Eronen, 2004b), self-harm (Kimonis et al., 2010), and suicidal behaviour (Verona, Hicks, & Patrick, 2005). Markedly, these characteristics are different

from how psychopathy is conceptualised and exhibited in males. This area will be reviewed in greater depth in chapter three, but suffice to say, it is evident that research suggests that a distinctive gendered expression of female psychopathy may exist (Forouzan & Cooke, 2005).

Regardless of gender differences, psychopathy has been linked to a range of harmful behaviours including institutional misconduct (Salekin et al., 1997) and the commission of instrumental violence (McDermott, Quanbeck, Busse, Yastro, & Scott, 2008), which make it an important construct to examine and understand in both genders. Instrumental violence can be considered a distinctly callous approach to violence, where violence is utilised to achieve a goal (e.g., money, sexual gratification) beyond feelings of revenge or anger. This is in contrast to reactive violence, which is emotionally led, in which the aim is to inflict harm to an individual with the goal of retribution over a perceived wrong. Classifying violence using this dichotomy can be a meaningful way to understanding underlying motivations for violence (Fontaine, 2007). Although there has been some debate on the relevance of the classification system (Bushman & Anderson, 2001), research continues to highlight the importance of considering the risk for violence within the context of instrumental or reactive violence (Walters, Frederick, & Schlauch, 2007).

The Present Thesis

Therefore, this thesis aims to explore the nature and construct of female offending and examine the distinctiveness and similarities of risk factors between genders. Specifically, this thesis will examine:

1. Risk factors for female offending
2. Whether these risk factors are different from those found in males
3. If subtypes of violence (instrumental or reactive violence) are connected to gender differences in risk factors
4. The role of personality disorders (including psychopathy) in understanding gender differences in offending

To achieve these thesis aims, chapter two will present a systematic literature review of empirical research that has examined risk factors connected to the prediction of female offending. Due to the sparseness of female offending, studies are often made up of small, specific samples which can be difficult to generalise. As such, examining this research collectively and systematically with the inclusion of the quality assessments of studies will provide more informed conclusions to illuminate directions for future research. Given the complexity of some of the issues being examined, it was important to look at female offenders in two ways, both in isolation and with a male comparison group. As such, in this review an emphasis was placed on research with samples of females only as too often gender specific factors are not considered in studies with both males and females. Additionally, to gain a baseline impression regarding the current state of research on female risk factors, samples with mitigating factors such as mental illness or intellectual difficulties have been excluded.

Building on some of the questions raised by the systematic review, the research project in chapter three aimed to examine gender differences for psychosocial risk factors and institutional misconduct related to two subtypes of violence; instrumental or reactive violence. The aim was to examine gender differences for violence through a more precise filter such as instrumental and reactive aggression, to ascertain if this elucidates an understanding of differences noted in previous research regarding gender and violent offending. This is especially important given that it has been suggested that mental health professionals tend to underestimate the risk of aggression in female inpatients, causing serious issues with the validity of clinical violent risk assessments (McNiel & Binder, 1995; Skeem et al., 2005). To date, no known study has explored the instrumental/reactive violence dichotomy within a sample of female inpatients. Additionally, the inclusion of a male comparison sample is important to fully contrast men and women on a number of gender-neutral and gender-specific risk factors (van der Knaap, Alberda, Oosterveld, & Born, 2012), as this was noted to be an area of debate in the systematic review.

As part of this examination of gender differences, the Levenson Self-Report Psychopathy scale was used in the research project to explore the role of psychopathy in the relationship with risk

factors and subtypes of violence. Chapter four presents a critical review of this scale and its applicability as an assessment of psychopathic traits in both males and females in order to place the results from chapter three into context. To fully appreciate the potential limitations and benefits of using this tool in the current research project an in-depth review is warranted, especially given the ongoing developments in this area. Research has demonstrated that psychopathy likely has an important role to play in understanding female violence (Nicholls, Ogloff, Brink, & Spidel, 2005; Verona, Sprague, & Javdani, 2012). Furthermore, psychopathy is linked to the type of violence an individual may engage in and is especially relevant to understanding some of the differences between instrumental and reactive violence (Fite, Raine, Stouthamer-Loeber, Loeber, & Pardini, 2010). As such, the importance of ensuring an accurate assessment of psychopathy is important in advancing our understanding of female offending.

It is evident that an understanding of crime committed by females has become mired in debates regarding the efficacy and appropriateness of utilising risk factors and assessment tools normed on males, to understand female offending. As a result, those working with females within the criminal justice system are pressured to address two simultaneous appeals (Hubbard & Matthews, 2008): a call for a strict non-gendered approach for seriously offending women, while balancing the need for a more holistic, women-centre approach to offending (Corston, 2007). Research has yet to reach a consensus regarding how best to conceptualise risk for crime in females. Therefore, a lack of clarity exists which impacts upon the consistency and effectiveness of rehabilitation for female offenders. On a positive note, research in this area has increased; it has begun to more fully explore the application of risk factors developed on male offending groups, as well as attempting to identify risk factors unique to female offenders. It is hoped that this project will build upon current research and assist in clarifying the relevance of a gender specific approach to understanding female offending. Ultimately, advances in this area will aid in informing risk assessment and rehabilitation approaches with female offenders.

**CHAPTER TWO: PREDICTING RISK OF RECEDIVISM IN FEMALE
OFFENDERS – A SYSTEMATIC REVIEW**

Background

The most accurate and efficacious way in which female recidivism should be assessed has been debated by researchers from various theoretical camps. Thus, much of the current research has demonstrated a division in the literature regarding the role of a gender responsive approach to predicting female reoffending, versus utilising current gender neutral approaches. To be able to draw broader conclusions regarding risk factors for female reoffending that step beyond this debate, this chapter aims to systematically review female recidivism literature.

As was noted in the previous chapter, a disagreement exists in the literature regarding the extent that gender responsive factors may play in understanding female risk for offending. This is in contrast to a gender neutral approach, which is best exemplified in practice by the use of ‘traditional’ risk assessments that have been originally normed on adult male offenders. These assessments may follow either an actuarial or structured professional judgement approach and include tools such as the Violence Risk Appraisal Guide (VRAG; Quinsey, Harris, Rice, & Cormier, 2006) and the Historical Clinical Risk Management – 20 (HCR-20; Webster, Douglas, Eaves, & Hart, 1997). One such measure that is closely aligned with gender neutral proponents is the Level of Service /Case Management Inventory (LS/CMI; Andrews, Bonta & Wormith, 2006), which has been described as the “most widely used and best validated measure of general criminal recidivism” (Hanson, 2005, p.213).

Based upon a social cognitive approach to understanding crime, the LS/CMI² is designed to assess offenders while adhering to the risk-need-responsivity (RNR) model of rehabilitation. Designed to be used with male and female offenders over the age of 16, it considers an individual’s risk and treatment needs, as well as guides the development of an individualised case management plan. Following a structured professional judgement approach, the LS/CMI consists of 43 risk items over eight subscales (reflecting the central eight risk factors): criminal history, education/employment, family/marital, leisure/recreation, companions, alcohol/drug problem, procriminal attitudes, and

² The LS/CMI is the newest version of the Level of Service Inventory – Revised [LSI-R; Andrews & Bonta, 1995], incorporating a stronger focus on case management and general risk/need scores beyond assessment of individual risk items.

antisocial pattern. Additional scales invite the evaluation of specific risk/need factors including prison/institutional factors, other client issues and special responsivity considerations leading to overall summary scores and a risk/need profile. Once the risk/need level is determined, and offenders have been classified according to the tool, four sections guide the assessor through case management protocol: programme placement/decisions, overall case management plans, progress records to log activities and guidance for the production of a discharge summary. Use of the LS/CMI has been adopted by multiple prison services and criminal justice agencies including those found in Canada, in parts of the United States and Europe (including Scotland, Ireland) and influenced the development of the Offender Assessment System (OASys) utilised in HM Prison service (Howard, Clark, & Graham, 2006; National Corrections Institute, 2004; Raynor, 2007 & Rettinger & Andrews, 2010).

Rather consistently, it has been shown that by utilising gender neutral risk factors, the LS/CMI is successful in predicting recidivism in both males and females in a range of populations (Andrews et al., 2012). A meta-analysis of 27 effect sizes (yielding a population of 14,737 women) demonstrated that the LSI – R predicted recidivism equally well in both male and females (Smith, Cullen, & Latessa, 2009). Indeed, gender neutral factors, within this framework have been shown to be predictive of general and violent reoffending in groups of Canadian female offenders (Coulson, Ilacqua, Nutbrown, Giulekas, & Cudjoe, 1996; Folsom & Atkinson, 2007), American female offenders (Lowenkamp, Holsinger, & Latessa, 2001; Manchak, Skeem, Douglas, & Siranosian, 2009; Vose, Lowenkamp, Smith, & Cullen, 2009) and English female prisoners (Palmer & Hollin, 2007).

In addition to gender neutral factors demonstrating predictive power in females, they appear to account for most of the predicted variability in reoffending, beyond anything that gender specific factors could add in incremental validity. In a 57-month follow up of 411 Canadian female offenders, the “central eight” risk factors accounted for 97% of variance when predicting any reoffending (Rettinger & Andrews, 2010), with the “big four” accounting for 91% of the variance. Although history of victimisation was high in this sample (e.g., 72% experienced some form of maltreatment as an adult, 58% experienced some form of maltreatment as a child), correlations were low with both general ($r = .18, p < .05$) and violent ($r = .09, p < .05$) offending and contributed nothing to the

prediction of reoffending once the central eight factors were considered (Rettinger & Andrews, 2010). This is similar to results from the Lowenkamp and colleagues study (2001), in which historical child abuse added nothing to the predictive ability of the LSI-R total risk score ($R = .000$, $p > .05$) in a sample of female federal prisoners.

However, questions regarding the true applicability of gender neutral factors with females remain. In Rettinger and Andrew's study (2010), the LS/CMI performed differently, depending on the risk level of the offender. In those with a serious criminal history, the LS/CMI performed better (AUC = .90) compared to those with a minimal history of offending (AUC = .77). Further differences in the performance of LSI-R scales were noted in a sample of American offenders (Manchak et al., 2009). While the LSI-R performed equally well across genders when predicting serious offending, the financial scale, criminal history and substance abuse scale were more predictive for men, while only the financial scale was predictive for women (Manchak et al., 2009). This may suggest that differences exist regarding which risk factors are most relevant for each gender within subgroups of offenders.

Support for the applicability of other risk assessments such as the HCR-20 or Psychopathy Checklist Revised³ (PCL-R; Hare, 2003) to predict reoffending in females has also been mixed (McKeown, 2010). In a prospective two-year follow up study, British male and female prisoners released from prison were followed (Coid et al., 2009) to determine the effectiveness of five risk assessments between genders (PCL-R, HCR-20, VRAG, Risk Matrix-2000/V and the OGRS-II). Most risk assessments examined in this study failed to achieve statistical significance among women when predicting reoffending (Coid et al., 2009). Violent reoffending perpetrated by women in this study was best predicted by the PCL-R and the Historical scale of the HCR-20 (but even these AUCs were modest, ranging from .70 - .73), whereas men's violence was best predicted by the OGRS-II, VRAG and Risk-Matrix 2000/V with AUCs ranging from .69 - .72 (Coid et al., 2009). This is in stark contrast to results published by a German study, where VRAG and Factor 2 of the PCL-R were

³ It is noted that the PCL-R is not an assessment tool *per se*, rather an assessment of personality. However, it is increasingly being used to inform risk, and is frequently included in research that examines predictive validity for offending, alongside other risk assessments.

predictive of reoffending in females and the HCR-20 demonstrated no predictive value (Eisenbarth, Osterheider, Nedopil, & Stadtland, 2012). Similarly in two Dutch studies utilising female inpatients, only the HCR-20 final risk judgement was predictive of reoffending, whereas the PCL – R and HCR-20 total scores and subscales had poor accuracy predicting general and violent offending (de Vogel & de Ruiter, 2005; Schaap et al., 2009). Markedly, the inaccuracy of these tools only appears evident for female samples, with the performance of the HCR- 20 (de Vogel & de Ruiter, 2005), VRAG and PCL-R (Hastings, Krishnan, Tangney, & Stuewig, 2011) demonstrating superiority in predictive accuracy in matched samples of male offenders. This suggests an unclear picture regarding the efficacy of traditional risk assessments on female offenders and encourages the exploration of risk factors for reoffending that may be female specific.

As many studies examining risk factors in females utilise small, specific samples, generalisability of the results are difficult. In addition, these small samples are usually made up of specific offending groups that further reduce generalisability to wider samples. A systematic review of risk factors that are predictive of reoffending in females will help to facilitate a broader understanding of this area. Furthermore, by assessing the quality of extant literature there will be greater confidence in the generalisability of results. The aim of this systematic review is to determine a relative consensus among studies examining risk factors for recidivism in adult female offenders.

Objectives are to:

- 1) Determine what risk factors are key in distinguishing recidivists from non-recidivists
- 2) Determine what risk factors will predict future violent, sexual or general offending
- 3) Assess the quality of these studies and evaluate the impact of these methodologies upon results
- 4) Highlight areas in need of future research, to ensure further elucidation of key topics

Scoping

To ensure this review on predicting risk in female offenders was novel, multiple scoping searches were conducted. Systematic review databases Cochrane, Campbell Collaboration Library and the Centre for Review and Dissemination (DARE) were examined using search terms “female offender*”

OR “female criminal*” OR “women offender*” OR “women criminal*” searched in all text. This resulted in no hits regarding risk prediction or recidivism. To further ensure no systematic reviews existed on these three websites, the search term “recidivism” was also used resulting in no relevant results on the topic in question.

Electronic databases PsycINFO and MEDLINE were also searched to determine the presence of existing reviews. Using the terms “female offender*” OR “female criminal*” AND review* searched in abstract resulted in 82 hits on PsycINFO. Thirty-five of these hits were book reviews or dissertations and were excluded. Most of these reviews focused on very specific topics relevant to female offenders such as arsonists, treatment review papers and focus on adolescent female offending or were prior to 1995. A search on MEDLINE returned four results, none of which were relevant to the topic in question. Similar to many of the results found in PsycINFO, articles were regarding specific groups of female offenders such as sex offenders and mentally disordered offenders.

Four literature review articles relevant to the proposed topic did emerge during scoping searches, however they were too specific to their individual topics to eclipse the need for this present review. Poels (2007) reviewed existing literature on risk prediction for violent and sexual offending females. He considered gendered approaches to offense pathways, reviewed common characteristics and typologies of violent and sexually offending women, reflected on Risk-Need-Responsivity issues in female offending, as well as examining risk factors for reoffending (Poels, 2007). No search protocol was explained within this article, so the inclusion and exclusion of articles is unclear. He also stated that his review is “within a New Zealand correctional context” (Poels, 2007, p. 227) which indicated a potentially biased inclusion of the literature that is reviewed in this article. Lastly, there is no quality assessment of the articles included, potentially reducing the accuracy and generalizability of conclusions drawn.

McKeown (2010) also reviewed existing literature on violence prediction in female offenders, but concentrated solely on risk prediction assessment tools such as the HCR-20, VRS-2 and PCL-R. While this review included risk assessment instruments used in predicting recidivism in female

offenders, the inclusion and exclusion criteria are not specified, thus biases in literature collection are unknown. Additionally, there is no general examination of risk factors that contribute to female offending and a lack of quality assessment of studies reduces the ability to rely on the results and conclusions drawn.

Cauffman (2008) presented a review of female adolescent offenders which highlights prevalence, impact of offending, pathways and trajectories, intervention and risk factors. However, this does not extend into adult female offending, focusing solely on female adolescent offenders, and only reviewing literature that uses juvenile female offenders. In addition, the review is not systematic so one is unsure of bias in presented literature and there is no quality assessment of articles included. In addition, as the review focuses on such a breadth of topics, it is unclear how thoroughly and in depth the area of risk factors for future reoffending is specifically examined.

Collins (2010) conducted a meta-analysis examining risk factors in men and women offenders that resulted in violent or non-violent offending. As studies were being used for a meta-analysis, inclusion criteria were strict, only utilising studies that were published in peer-reviewed journals (thus excluding all grey literature), and excluding any study that did not publish statistics that could be converted to Cohen's *d* which was needed for further analysis. The author states that "the vast majority of articles screened did not contain sufficient quantitative data to calculate effect size" (Collins, 2010, p. 682) and highlights this as a limitation to the current meta-analysis. While men and women offenders were included, studies examining female sexual offenders were excluded from the meta-analysis, further reducing the generalizability to all female offenders. Lastly, only risk factors common to both male and female offenders were examined in this meta-analysis, unfortunately excluding the unique risk factors present in female offenders that this current review seeks to examine.

The aim of this systematic review is to examine all the literature (including grey literature if necessary) that reviews risk factors for any reoffending (violent, sexual or general) in females. However, samples that only included a subset of specific offenders (e.g., arson, domestic violence)

were excluded to ensure a broad comparison between offending groups was possible. In examination of risk factors relevant to female offending, an examination of both females in isolation, as well as with a male comparison group is important for a balanced approach. To ensure that uniquely female factors are considered, literature that only studies women will be included in this systematic review, as too often the inclusion of a male comparison group negates the examination of gender-specific risk factors. However, to delineate gender differences, a comparison between risk factors will be carried out in the research project in chapter three. Additionally, literature regarding juvenile offending will be excluded to ensure a more focused examination of factors related to adult female offending.

Method

Search Protocol

To ensure a full representation of literature on this topic, a variety of resources were examined. Four electronic databases were utilised: PsycINFO, MEDLINE, EMBASE and Web of Science. To accurately capture grey literature, government websites were examined (UK, US and Canada), as were all reference lists of articles that met basic inclusion and exclusion criteria. Search terms used were females, offenders, risk, and recidivism (for full search protocols, including all synonyms of search terms, please see Appendix A).

Inclusion criteria for the population was adult females (age 18+), who had been convicted of any offence (violent, sexual or general). Populations that were excluded included those solely made up of female offenders with learning disabilities or specific subsets of offenders, adolescent female offenders, or samples that contained both male and female offender groups. There was no inclusion or exclusion based upon intervention (or lack thereof), unless the study was only examining a treatment program with no other factors. Comparator exclusion criteria were similar to that for population parameters, excluding comparisons to males, adolescents or female offenders with learning disabilities. The criteria for the outcome measure were recidivism (any reoffending), measured by either official records or self-report. Additional inclusion factors were any risk factors examined for recidivism, including scores on any risk assessment measure, and community or prison setting.

Additional exclusion factors were studies of inpatient mental health groups, non-English language studies and dissertation or thesis projects. To ensure the most current literature in this area, studies published prior to 1995 were excluded.

Search Strategy

Electronic databases were searched first starting with PsycINFO, as this database was expected to yield the greatest number of hits. PsycINFO (1987 to May week 3, 2013) was accessed through the University of Birmingham Library website on the 25 May 2013. PsycINFO was accessed using the Wolters Kluwer Health OvidSP interface which also provides access to MEDLINE and EMBASE databases. OvidSP interface gives the option of utilising search terms mapped to subject headings which automatically matches terms to a controlled vocabulary within each resource. In an initial search of PsycINFO, mapped search terms were utilised (female criminals, recidivism, risk factors/risk assessment) which only yielded 6 results. Due to the lower number of hits, it was decided that using mapped terms was too stringent a search and a general keyword search was used instead. This procedure was applied to all databases that gave the option of using mapped terms, and after each database search, results were downloaded in EndNote reference manager software.

In PsycINFO, keyword search, searched title, abstract, heading word, table of contents, key concepts, original title, tests and measures were included. Each keyword with synonyms was inputted into the search engine, then all four separate searches were combined using the AND Boolean operator (see Appendix B for screenshot of PsycINFO search). Total hits after this combined search was 273 hits.

The next database to be searched was MEDLINE (1946 –May week 3, 2013), also through the Wolters Kluwer Health OvidSP interface on 25 May 2013. Using the same search strategy that was used with PsycINFO, keywords were inputted into the search engine and searched through the default keyword search of protocol supplementary concept, rare disease supplementary concept, title, original title, abstract, name of substance word, subject heading word and unique identifier. As with the prior search, each search term was entered independently and the four searches were combined

into one search using the AND Boolean operator. Total hits yielded with this procedure were 390 (see Appendix C for screenshot of MEDLINE search).

The last database using the Wolters Kluwer Health OvidSP interface was EMBASE (1974 – May 24 2013), which was also searched on 25 May 2013. Similar to the prior two searches, search terms were entered, searching via the default keyword searching function within title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer was used. All searches for each keyword were entered independently and then combined, producing 441 results (see Appendix D for search summary screenshot).

Web of Science (1995 – 2013) was the last electronic database to be consulted. All search terms were entered, using one search box for each keyword topic. Terms were searched by topic, and yielded 224 hits (see Appendix E).

Results from each of the four databases were combined ($N = 1328$) and then duplicates were removed, resulting in 832 potential results. Visual inspection of titles indicated that many of the articles were off topic, concerning medical issues (e.g. HIV) or driving while intoxicated, so these were initially eliminated ($n = 191$). Then, studies with male only samples (including adolescent males) were eliminated ($n = 292$), as were off topic articles based upon review of abstracts ($n = 29$). As the search protocol excluded all studies with male comparisons, these too were excluded ($n = 182$), as were studies using inpatient psychiatric samples ($n = 39$) and adolescent samples ($n = 16$). This left 83 results for in depth assessment. Full studies were accessed if it was not evident from abstracts if a study met the inclusion or exclusion criteria. Please see Appendix F for list of studies excluded and reasons for exclusion and Figure 1 for flow chart of the selection process.

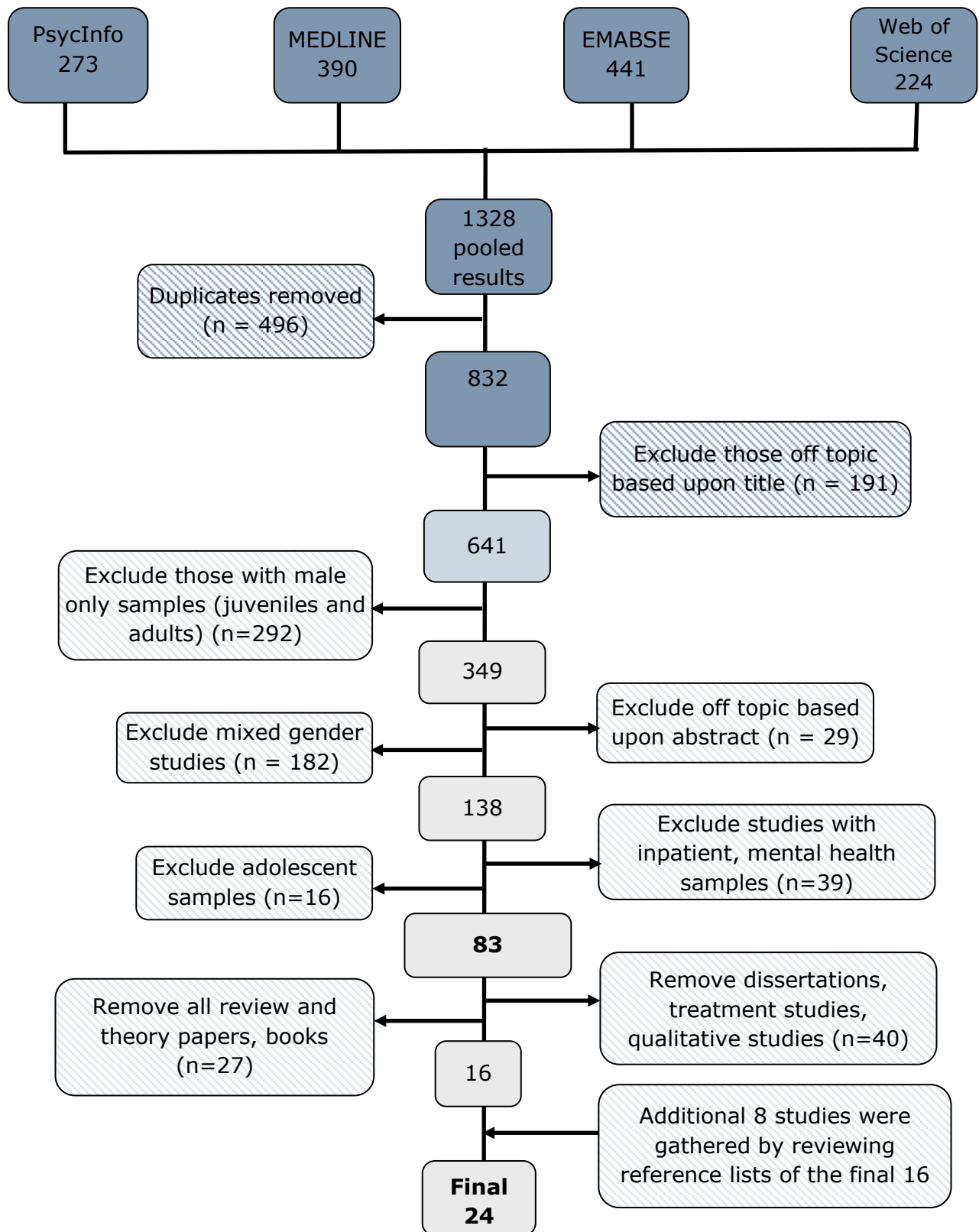


Figure 1. Flow Chart of Study Inclusion and Exclusion

Applying the inclusion criteria for the 83 results left 16 studies to be included in the review. Full copies of these 16 studies were obtained and reference lists were scanned for additional studies. Abstracts were accessed if it was unclear from title alone what the study was about. A number of additional studies were found by reviewing reference lists, and all attempts were made to access copies. Two articles were not able to be accessed via libraries and web databases, and three citations were for conference presentations (see Appendix F for unobtainable studies). First authors were contacted regarding presentations. Unfortunately, only one author responded to the researcher's request, stating that their presentation (Wijkman & Bejleveld, 2008) relied on a sample with methodological problems and therefore was not a reliable study. They suggested accessing a similar study by them available in one of the books (Gannon, & Cortoni, 2010) previously eliminated by this search due to time constraints so it could not be included.

An additional eight studies were gathered from reviewing reference lists. No additional sources from government websites were retrieved that were not already reviewed from the prior reference list search. Therefore the total sample of available studies was 24.

Table 1. Quality Assessment Scores of Studies

Study Name (Authors/Title)	Quality Assessment Score
1. Rettinger & Andrews (2010) <i>General Risk and Need, Gender Specificity and the Recidivism of Female Offenders</i>	92.31%
2. Kimonis et al. (2010) <i>Suicidal Behaviour and Criminal Behaviour Among Female Offenders: The Role of Abuse and Pathology</i>	84.61%
3. Putkonen et al. (2003) <i>Risk of Repeat Offending Among Violent Female Offenders with Psychotic and Personality Disorders</i>	84.61%
4. Sandler & Freeman (2009) <i>Female Sex Offender Recidivism: A Large Scale Empirical Analysis</i>	84.61%
5. Seigel & Williams (2003) <i>The Relationship Between Child Sexual Abuse and Female Delinquency and Crime: A Prospective Study</i>	84.61%
6. Anumba et al. (2012). <i>Social Functioning, Victimization and Mental Health Among Female Offenders</i>	80.77%
7. Bonta et al. (1995) <i>Predictors of Recidivism Among Incarcerated Female Offenders</i>	80.77%
8. Salisbury & Van Voorhis (2009) <i>Gendered Pathways: A Quantitative Analysis of Women Probationer's Pathways to Incarceration</i>	80.77%
9. Warren et al. (2002) <i>Personality Disorders and Violence among Female Prison Inmates</i>	80.77%
10. Wiezman-Henelius et al., (2004) <i>Psychological Risk Markers in Violent Female Behaviour</i>	80.77%
11. Holtfreter et al., (2004) <i>Poverty, State Capital and Recidivism Among Women Offenders</i>	76.92%
12. Warren et al. (2005) <i>Understanding the Risk Factors for Violence and Criminality in Women: The Concurrent Study of the PCL-R and HCR-20</i>	76.92%
13. Eisenbarth et al. (2012). <i>Recidivism in Female Offenders: PCL-R lifestyle factor and VRAG Show Predictive Validity in German Sample</i>	73.07%
14. Folsom & Atkinson (2007) <i>The Generalizability of the LSI-R and CAT to the Prediction of Recidivism in Female Offenders</i>	73.07%
15. Palmer & Hollin (2007) <i>Level of Service Inventory – Revised with English Women Prisoners: A Needs and Reconviction Analyses</i>	73.07%
16. Salisbury et al. (2009) <i>The Predictive Validity of a Gender Responsive Needs Assessment: An Exploratory Study</i>	73.07%
17. Reisig et al. (2006) <i>Assessing Recidivism Risk Across Female Pathways to Crime</i>	69.23%
18. Richards et al., (2003) <i>Psychopathy and Treatment Response in Incarcerated Female Substance Abusers</i>	69.23%
19. Salekin et al. (1998) <i>Psychopathy and Recidivism in Female Offenders</i>	69.23%
20. Coulson et al. (1996) <i>Predictive Utility of the LSI-R for Incarcerate Female Offenders</i>	65.38%
21. Van Voorhis et al. (2008) <i>Achieving Accurate Pictures of Risk and Identifying Gender Responsive Needs: Two New Assessments for Women Offenders</i>	65.38%
22. Verbrugge et al. (2002) <i>Predictors of Revocation among Substance Abusing Women Offenders</i>	61.54%
23. Loza et al. (2005) <i>Cross Validation of the Self-Appraisal Questionnaire: A Tool for Assessing Violent and Nonviolent Recidivism in Female Offenders</i>	57.69%
24. Loucks & Zamble (1999) <i>Predictors of Recidivism in Serious Female Offenders</i>	50.00%

Quality Assessment

Following the sorting of studies against the inclusion and exclusion criteria, each included study was then quality assessed for methodological soundness, significance of results and potential biases. Quality assessment criteria used were from the Critical Appraisal Skills Program (Solutions for Public Health, NHS) criteria for cohort studies. These included questions regarding hypothesis, sample selection, data collection procedures, significance of results, and relevance to the United Kingdom and this field of literature. In addition, because this systematic review was interested in predictive studies, a variable for attrition issues was included to account for potential difficulties with follow-up timeframes. Please see Appendix G for full quality assessments on all 24 studies. Each quality assessment criteria was scored from 0 – 2 (0 – no, 1 – possibly, 2 – yes), for a total score out of 26, where a higher score indicates a better quality study.

To ensure reliability of the quality assessment scoring, five studies were chosen at random and scored by a second coder. Mean scores for these selected studies were not significantly different [$t(8) = 1.04, p = 0.33$] between the first and second coder ($M = 19.80, SD = 3.27, M = 17.80, SD = 2.77$, respectively). Intra-class correlation coefficient (ICC) was computed with two-way mixed model and absolute agreement. The ICC indicated good reliability (Cicchetti, 1994) between raters (average measures ICC = .87).

Results

Data Extraction and Synthesis

Data was extracted individually for each study using a specially designed data extraction form. For individual data extraction forms, please see Appendix H. Table 2 presents a synthesised table of the 24 included studies allowing for comparison of sample, length of follow-up, measures and data collection, results (including non-significant results) and conclusions. It is evident from Table 2, that a variety of risk factors have been examined regarding their association with female offending.

The majority of the 24 studies utilised a cohort study design ($n = 20$), with one study (Weizmann-Henelius et al., 2004) employing a case-control approach with a sample of violent female

offenders and a matched control group. Only one of the cohort studies utilised a non-offending control group (Seigel et al., 2003). Two studies used a cross-sectional approach (Warren et al., 2002; Warren et al., 2005) and, as such, “postdicted” offending and explored relationships between factors, rather than employing a longitudinal approach assessing predictive validity. However, given the wider similarities (e.g., all observation studies, examining reoffending using very similar independent variables and samples) between all 24 studies, and that the majority of studies were cohort design, a quality analysis form for cohort studies was used to assess all studies. Furthermore, as the quality analysis criteria was somewhat broad, other study designs could be easily considered within the framework.

Most of the studies came from North American samples (United States of America $n = 14$; Canada $n = 6$) and these studies usually possessed larger samples of female offenders compared to other studies in this review. Four studies were from European countries (UK = 1, Germany = 1; Finland = 2) and one study from Singapore (this study is counted twice as it included samples from both America and Singapore; thus, the 24 studies had 25 samples). In the 21 longitudinal studies, follow-up times varied widely from as little as 6 months up to 20 years (Mean 4.13 months, 49.51 months, $SD = 56.03$). Similarly, sample sizes also varied widely, with samples ranging from 61 – 1652 females (Mean = 326.25, $SD = 396.23$).

Data collection between all studies was carried out similarly with most studies using a combination of file review and interview to gather data. The others relied solely on self-report (Bonta et al., 1995; Folsom & Atkinson, 2007; Loza et al., 2005; Salisbury & Van Voorhis, 2009; Van Voorhis et al., 2008). In addition to using specific risk assessment measures (e.g., Level Service Inventory, Psychopathy Checklist, Historical, Clinical Risk Management – 20), the most commonly used measure was the Personality Assessment Inventory (PAI; used in three studies) and the Structured Clinical Interview for the DSM-IV (SCID-II; used in two studies) to assess aspects of personality and mental health functioning. Other than risk assessment tools and personality measures, there was largely a lack of standardised measures from which data was collected, as 10 studies used their own coding schemes and measures derived from literature to assess gender responsive risk

factors (whereas data on gender neutral risk factors was assessed using previously validated risk assessment measures).

History of abuse and maltreatment was one of the most commonly examined risk factors, with 10 of the 24 studies examining variables in this area. Mental health problems including personality disorder, self-harm behaviours and psychosis were also examined in 10 out of the 24 studies. The popularity of these two items in this review reflects wider arguments in the gender responsive literature regarding the importance of these factors when considering risk in female offenders. Not surprisingly, given their popularity as risk assessment tools with male offenders, six studies examined the utility of the PCL-R and seven studies examined the utility of the Level Service Inventories (any version). Regardless of the variable examined, the majority produced contradictory evidence regarding the relevance of factors to female offending, save for two areas. Studies examining criminal history (eight studies) were in agreement over the importance of this item in predicting future reoffending, as were studies examining the impact of personality disorders (four studies). Additionally, only three studies sought to look at protective factors

Table 2. Data Synthesis of final 24 studies

		QA	Sample/Follow-up	Measures	Results (with reoffending unless otherwise stated) Conclusions	Null Results
1.	Anumba et al. (2012)	80.77%	300 American, female offenders, released from a private assessment centre 1 year follow-up	File coding, including plus the Personality Assessment Inventory (PAI, to assess social functioning, mental health including stress and anxiety) and Level Service Inventory – Revised (LSI-R, companion scale only used) Other background variables: Education, religious participation, history of victimisation (Y/N)	Results: Hypothesis 1, relationship between victimisation and mental health problems: PAI stress score of the victimized group (M = 59.02, SD = 11.88) was significantly higher than that of the non-victimized group (M = 55.66, SD = 9.01), $F(1, 290) = 6.14, p = .014, \eta^2 = .02$ (small effect size). Conclusions: Childhood victimization was not associated with recidivism but was associated with vulnerability to stress and mental health problems in female offenders, which is contrary to current research. Authors conclude that if trauma is not related to criminal outcomes, then the cost of gender-responsive programming in prison may be unwarranted.	Hypothesis 2 and 3: relationship between victimisation, social functioning and reoffending: Victimization history and non-support (on PAI) score were not significant predictors of post release arrests in the year following release. Neither victimization history nor years of education taken together significantly predicted rearrests, nor did LSI-R companion scale and victimisation.

	QA	Sample/Follow-up	Measures	Results (with reoffending unless otherwise stated) Conclusions	Null Results	
2.	Bonta et al.(1995)	80.77%	136 Canadian, federally sentenced female offenders either in prison or on parole in the community 3 year follow-up	Semi-structured interview and independent file coding	<p>Results: Prior adult arrest ($r = .46^{***}$), longer sentence length ($r = -.29^{**}$), age at prison admission ($r = -.26^{**}$), history of unarmed robbery ($r=.19^*$), history of drug offences ($r= -.28^{***}$), violence towards staff ($r=.22^*$) and number of incidents in prison ($r=.27^{**}$)</p> <p>Single mothers more likely to reoffend than mothers with partner ($\chi^2 = 4.01^*$), as were those on welfare ($\chi^2=3.88^*$), and with history of self-harm ($\chi^2 = 11.33^{***}$), inverse relationship with being a victim of adult physical abuse ($\chi^2 = 4.29^*$)</p> <p>Conclusions: Similar factors as those for male offenders (crime type, prior crime history and sentence length), but also significant differences between those that reoffended and those that did not. Abuse unrelated to recidivism in women which is contrary to much research, as was treatment. The authors conclude more research is needed to examine female offending risk factors</p>	<p>Juvenile offense, drug and alcohol use, offense committed with a co-offender, childhood abuse (physical, sexual and number of abuses) and prison based programming (psycho-educational). Parole classification scale also not related to recidivism.</p> <p>No other crime type related to recidivism.</p>

	QA	Sample/Follow-up	Measures	Results (with reoffending unless otherwise stated) and Conclusions	Null Results
3.	Coulson et al. (1996)	65.38% 301 women discharged from a medium secure prison in Canada (consecutive discharges) 1 - 2 year follow-up	Level Service Inventory (LSI, early version of the LSI-R) and discharge type (parole, halfway house) Outcome: 3 types of failure (parole failure, reoffending, halfway house failure) using official database	Results: LSI correlated with recidivism .51**, .53** with parole failure, .45** for half way house failure. Significant difference in recidivism for low (8%) and high risk (29.5%) LSI groups χ^2 (2, n = 182) = 11.78*** Conclusions: Risk level, as predicted by the LSI predicted outcome regardless of discharge type and appears to be a valid risk assessment tool for female offenders, especially to inform discharge planning.	
4.	Eisenbarth et al. (2012)	73.07% 80 female offenders from Germany (part of the Munich Prognosis Project – this is not specified). Follow-up: 9 years (1994 – 2003), mean time 95.5 months	Psychopathy Checklist – Revised (PCL-R), Historical Clinical Risk Management -20 (HCR-20), Violence Risk Appraisal Guide (VRAG) Recidivism (dichotomously coded only) using	Results: PCL-R total score was significantly predictive for general recidivism (AUC = 0.66*) At factor level, Hare’s antisocial lifestyle (Factor 2 ; AUC = 0.64*), Of Hare’s 4 facet model, Hare’s lifestyle facet 3 (AUC=0.65*) the only one predictive Cooke’s impulsive and irresponsible behavioural style factor 3 showed a significant predictive result (AUC=0.65*)	HCR-20 total or scales not predictive (AUCs ranged from 0.56 – 0.61, p > .05) PCL factors not predictive: Hare’s Interpersonal/Affective Factor 1 (AUC = .58, p > .05) Facet 1,2,4 of Hare’s 4 facet model not

4.	Eisenbarth et al. (2012) cont.		official records	VRAG also predicted significantly general recidivism (AUC=0.72*).	predictive (AUC ranged .56 - .65, p > .05).	
				Conclusions: Results point to the importance of lifestyle factors in female offenders to predict recidivism. Authors encourage validation of results with larger samples and assessment of violent offenders. Caution use of any of these assessment measures as stand-alone risk assessments for prediction of recidivism in female offenders.	Factor 1, 2 of Cooke's 3 factor model not predictive (AUC .58, .61, p > .05).	
5.	Folsom & Atkinson (2007)	73.07%	100 female offenders at a Canadian Federal Prison Mean follow-up 6 years	Level of Service Inventory – Revised (LSI-R), Child Adolescent Taxon Scale (CAT, a measure of early onset antisocial behaviour in adults)	Results: LSI-R was only correlated with any recidivism ($r = .30^{**}$). LSI-R AUC .67 any offences, .62 nonviolent offending, .67 violent offending Regression indicates that LSI-R did not predict beyond number of previous offences or age at first offense. The number of past convictions was the only variable that was significant ($\beta = .05$, $df = 1$, $p < .05$, $\text{Exp}(\beta) = 1.05$). CAT correlated with any (.27 $p < .05$) and violent offending (.23 $p < .05$), but not nonviolent. AUC for CAT .68 for any, .61 for nonviolent and .72 for violent. CAT did not add to age at for first offence of number of prior	LSI-R not correlated with violent or non-violent offending

5.	Folsom & Atkinson (2007) cont.				convections		
					<p>Conclusions: Most of the predictive value of the LSI-R and CAT come from two historical variables, age at first offense and number of prior offences</p>		
6.	Kimonis et al., (2010)	84.61%	266 American female offenders either incarcerated, or housed in a substance abuse treatment facility	1 year follow-up	<p>Child Abuse and Trauma Scale (CATS, measure of childhood abuse), Personality Assessment Inventory (PAI, to measure internal/external psychopathology) PCL-R antisocial scale (lifetime criminality, using the three factor model)</p> <p>Reoffending, FBI national database, collapsed to dichotomous variable due to low rate of violent recidivists</p>	<p>Results: Abuse (any)$r = .31^{***}$ with lifetime criminality</p> <p>Used Structural Equation Modeling:</p> <p>Externalizing psychopathology partially mediates the relationship between abuse ($\beta = .19^{**}$) and lifetime criminality, and externalizing postdicted criminality ($\beta = .35^{***}$)</p> <p>Partial mediation was apparent for externalizing, given (a) a significant indirect effect from abuse to criminality via externalizing ($\beta = .12^{**}$), and (b) the reduction of the direct effect of abuse on criminality ($\beta = .28^{***}$), although the direct effect remained significant ($\beta = .19^{**}$).</p> <p>Conclusions: Abuse contributes to externalizing psychopathology, which in turns contributes to criminality. Authors question the use of PCL-R to predict recidivism in female offenders b/c in this study it was not associated with recidivism</p>	<p>No variables predicted recidivism within the follow-up, including the PCL-R.</p> <p>Internalizing behaviours unrelated to lifetime criminality</p>

7.	Holtfreter et al. (2004)	76.92%	134 American female felons from a community sample, either beginning probation or parole supervision 6 month follow-up	Ethnic minority, Education, poverty (according to census guidelines), risk as measured by the Level Service Inventory – Revised (LSI-R) Outcome: re-arrest or parole violation	Results: Poverty ($r = .20^*$), financial (measured by the LSI-R = .19*) Poverty Odds ratio = 5.46, poverty and parole violation Odds ratio = 15.36, poverty and re-arrest odds ratio 5.36 vs. LSI-R and re-arrest Odds ratio = 1.07 and parole violation Odds ratio = 1.09 Conclusions: Poverty may have a greater marginalizing effect on females, and thereby increase their risk of re-offending. General support for gendered pathways. Risk scores by the LSI-R were weak and suggest the LSI-R does not account for the unique factors related to females and poverty.	Most LSI-R subscale were not correlated with rearrest (except for financial)
8.	Loucks & Zamble (1999)	50.00%	100 incarcerated females at a Canadian Federal Penitentiary in Ontario 5 year follow up	Data was collected via records, interviews and self-report inventories and classified into four categories; social, personal, criminal and	Results: Psychopathy and anger were most predictive of historical violence. Psychopathy (both factors), past criminal history and substance abuse by father most predictive at 5 year follow up Pre-adolescent sexual abuse related to previous violent offending and psychological abuse related to general offending, neither were predictive of recidivism, however personality factors were more predictive (PCL-R) (NB: No statistics are included in this study).	Drug abuse, family cohesiveness not predictive A measure of poor coping not predictive No type of abuse or maltreatment predictive of reoffending (pre-

8.	Loucks & Zamble (1999) cont.		maladaptive behaviour (no specific details given regarding inventories used)	Criminal recidivism dichotomously coded.	Conclusions: Similarities between male and female risk factors (comparing to another published study of male offenders), therefore treatment targets found effective for males, should be useful with women, as should specific interventions. Authors argue that results do not support theories of female specific pathways to offending.	adolescent sexual abuse only predictive of prior violent offending, but not at follow-up).
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	QA	Sample/Follow-up	Measures	Results (with reoffending unless otherwise stated) and Conclusions	Null Results
9.	Loza et al. (2005)	57.69% 91 incarcerated female offenders in US, 183 incarcerated females in Singapore 1 year follow-up	Self-Assessment Questionnaire (SAQ, self-report, found to predict recidivism in male offenders) Level of Service Inventory – Revised (LSI – R; used to validate SAQ only). Reincarceration, using official records (Y/N coded)	Results: Singapore Study: SAQ correlated with recidivism (.24 p<.01), AUC .70, comparisons of failure between low, moderate and high risk (failure as a return to prison) was significant between the three groups (5.5%, 17.2%, 30.5% respectively). Conclusions: SAQ is appropriate for female offenders, and can be applied to a variety of ethnic groups. Performs similarly on both male and female offending groups.	No null results reported

	QA	Sample/Follow-up	Measures	Results (<i>with reoffending unless otherwise stated</i>) and Conclusions	Null Results
10.	Palmer & Hollin (2007)	73.10% 150 female offenders serving custodial sentences in England 2.5 years follow up after release from prison	Level Service Inventory – Revised (LSI-R; completed via file review and interview) Official national offender database for outcome measure (Reconviction Y/N)	<p>Results: Criminal History, Education/Employment, Alcohol/Drug Problems, and LSI-R total, $p < .001$; Financial, Accommodation, Leisure/Recreation, and Companions, $p < .01$; and Family/Marital, $p < .05$ correlated with history of offending.</p> <p>Women had higher level of need on family and marital relationships, accommodation, comparisons, alcohol and drug problems, and emotional and personal issues.</p> <p>LSI-R predictive of reoffending $\chi^2 (1, N = 96) = 19.62, p < .001$. Significance of LSI-R remained when age and previous convictions were controlled for.</p> <p>Survival analysis confirmed that lowest security band had the longest time for community failure, whereas highest band had the shortest time. LSI-R score also predicted time in community $\chi^2 (1, N = 96) = 21.23, p < .001$</p> <p>Conclusions: Demonstrates validity of the LSI-R in an English, female offending population. Overall level of risk similar to that found in male samples, but women demonstrated a higher level of need.</p>	No Null results presented.

	QA	Sample/Follow-up	Measures	Results (<i>with reoffending unless otherwise stated</i>) and Conclusions	Null Results
11.	Putkonen et al. (2003)	84.62% 132 Finnish females charged with homicide or attempted homicide, sent for psychiatric examination between 1982 – 1992 Up to 12 years	Explanatory variables were age at index offense, psychiatric diagnosis, history of criminal activity, alcohol or drug dependency, coded from interview and file data Recidivism dichotomously coded due to small sample	Results: Odds ratio 2.92 for drug/alcohol dependency, 1.83 for personality disorder, 9.36 prior criminal history, 1.62 for age under 25 at assessment Conclusions: Female rates of recidivism in this study (3% committed another murder) similar to rates of violent recidivism in men, published in other studies (2% committed another murder after index offence). Repeat offending appears to occur soon after release, similar to male offenders	No differences found between homicide sample and violent sample, therefore conclusion drawn that these results are generalizable to any violent offending women.
12.	Reisig et al. (2006)	69.23% 235 females under a community supervision order in Minnesota and Oregon 11 month follow-up	Level Service Inventory-Revised (LSI-R) and Daly's gendered pathways to offending Recidivism collapsed into	Results: LSI-R valid predictor in economically motivated group ($r=.24^*$), and unclassified (did not fit into any pathways) ($r=.41^*$) Nagelkerke $R^2 = .09$ for gendered pathways, or $.27$ for economically motivated (non-gendered). LSI-R over classified the harm and harming group, and under classified the drug group	LSI-R did not predict for those classified as street woman $r = -.18$, drug-connected $r = -.05$, harmed and harming $r = -.21$, battered $r = -.29$ (gendered pathways, $r = -.14$ $p > .05$),

	QA	Sample/Follow-up	Measures	Results (<i>with reoffending unless otherwise stated</i>) and Conclusions	Null Results
12.	Reisig et al. (2006) cont.		Y/N variable (rearrest, reconviction, revocation of release, parole violation)	<p>Conclusions: LSI-R does not predict for women following “gendered” pathways into crime. Encourages further exploration of unique female risk factors and typologies.</p> <p>LSI-R misclassified the risk level of these groups, as well, may lead to a misattribution of resources in the real world.</p>	Nagelkerke $R^2 = .09$ for gendered pathways
13.	Rettinger & Andrews (2010)	92.31% 411 Canadian women serving time in a provincial custody centre or serving a supervision order in the community Mean follow-up 57 months	Level Service Inventory-Revised and Level Service/ Case Management Inventory and gendered risk factors gathered from literature, coded from interview. Recidivism for national database (RCMP), defined as reconviction for either general (any offence) or	<p>Results: Big Four [antisocial attitudes, antisocial associates, history of crime and antisocial personality; $r = .63^*$, $.45^*$] for general, violence reoffending, Moderate factors ($r = .61$, $.47^*$) general/violence, minor $.658$, $.47^*$ for general/violence reoffending. , AUCs of $.86$ for violence and $.87$ for general offending</p> <p>Sexual, emotional abuse $r = .11^*$</p> <p>Self-abuse (suicide attempts and self-injury) was unrelated to general reoffending but did link with future violence (predictive correlation coefficients of $.10$ and $.12$). Self-harm items did not offer incremental predictive validity beyond to LS/CMI risk/need scores. Most mental health variables were not linked to reoffending save psychosis which had minor links with</p>	<p>Abuse unrelated to either type of offending; self-harm, non-supportive family, criminal relatives related to violent offending only, but did not contribute to predictive validity beyond that of the LSI-R</p> <p>No relationship to any offending: any abuse as an adult, physical abuse or any abuse as</p>

	QA	Sample/Follow-up	Measures	Results (<i>with reoffending unless otherwise stated</i>) and Conclusions	Null Results
13.	Rettinger & Andrews (2010) cont.		violent offence	<p>general and violent offending (.12, .13) but not beyond the LS/CMI</p> <p>Low risk women, poverty $r = .25^*$ AUC = .71, personal misfortune $r = .21^*$, AUC = .70 (no relationship with moderate or high risk women)</p> <p>Conclusions: The big four (criminal history, antisocial associates, cognitions and pattern) accounted for most of the predictive value, beyond age, race, SES, single parenthood, abuse, and emotional/distressing experiences</p> <p>Some gender specific factors noted in incarcerated women (e.g., abuse), and in low risk/need woman, financial factors and personal misfortune played a role.</p> <p>Concerns over RNR and gender neutral approaches to recidivism not supported.</p>	child.
14.	Richards et al. (2003)	69.23%	404 American incarcerated female offenders in a maximum security prison (64% African American, 35% White, 1% Asian/Hispanic), all enrolled in a one year	<p>Psychopathy Checklist-Revised (PCL-R) /Psychopathy Checklist: Screening Version</p> <p>Results: In program violence and Factor 1 ($r = .194^{***}$), in program violence and Factor 2 ($r = .125^{***}$)</p> <p>Psychopathy total scores and free days in community ($r = -.242$)</p>	

	QA	Sample/Follow-up	Measures	Results (<i>with reoffending unless otherwise stated</i>) and Conclusions	Null Results
14.	Richards et al. (2003) cont.	substance abuse program Follow-up 4 years	(PCL:SV), plus treatment variables Reoffending, Y/N	High psychopathy in community for significantly less days compared to low psychopathy ($F(2, 236) = 7.93, p < .005$) Cox regression indicates that predicting reoffending is mostly accounted for by Factor 1 ($\beta=.102^*$) Conclusions: Psychopathy associated with infractions within the program (including violence) and less free days before re-arrest. Most of this risk was contained within Factor 1 scores. Support using the PCL-R in female offenders as it demonstrated predictive ability for offending, institutional misconduct and treatment factors.	
15.	Salekin et al. (1998)	69.23% 78 American females incarcerated in a Texas Prison Mean follow-up 14 months	Measured by the Psychopathy Checklist-Revised (PCL-R), Personality Assessment Inventory (PAI), Personality Disorder	Results: Only PCL-R Factor 1 scores ($r = .26^*$) correlated with recidivism Antisocial scale on the PAI was correlated (.26*) as was Egocentricity scale of the PAI (.27*) and the Aggression scale of the PA (.29*) with recidivism AUC .64 for PCL-R psychopathy and	PCL-R total, PCL-R Factor 2

	QA	Sample/Follow-up	Measures	Results (<i>with reoffending unless otherwise stated</i>) and Conclusions	Null Results
15.	Salekin et al. (1998) cont.		Examination to assess for Antisocial Personality Reoffending Y/N	reoffending, odds ratio of 1.06 for PCL-R, AUC = .64 for Antisocial PAI, .59 for PDE. Classification accuracy of 62.9% with Wilks' lambda = .94, $x^2(1, 77) = 3.72, p = .05$. Factor 1 accounted for the most variance in this analysis and was a significant predictor on its own ($p < .05$). Conclusions: Psychopathy was a modest predictor in females for future offending, especially when compared with male offending samples. The authors point to the lower prevalence and disparate symptoms pattern indicating differences in female psychopathy compared to men	
16.	Salisbury & Van Voorhis (2009)	80.77% 2 year follow up	313 American women on probation in Missouri, newly convicted with sentences at least 2 years in length. Employment and financial needs scale, Educational Strengths scale, Family Support scale, History of Substance Abuse scale, Dynamic Substance Abuse scale, History of Mental Illness	Results: Using path analysis: Childhood Victimization Model: Correlations with prison admission current depression/anxiety .18**, history of substance abuse .18**, substance correlated with prison admission. Path analysis indicates that childhood abuse is an important indirect factor leading to, mental health problems ($\beta = .38^{***}$), substance abuse problems ($\beta = .37^{***}$), depression/anxiety ($\beta = .33^{***}$), then prison	

16. Salisbury & Van Voorhis (2009) cont.	scale, Current Depression/Anxiety scale, Childhood and Adult Victimization scale, Self-Efficacy scale, Relationship Dysfunctional Scale	<p>($\beta = .17^*$).</p> <p>Relational Model: Correlations to prison admission: Self efficacy ($r = -.12^*$), depression/anxiety ($r = .18^{**}$), and substance abuse ($r = .23^{***}$). Path analysis showed that these variables were mediated by relationship dysfunction leading to reduced self-efficacy ($\beta = -.35^{***}$) or adult victimization ($\beta = .33^{***}$), current depression/anxiety ($\beta = .25^{***}$), then prison admission ($\beta = .13^*$)</p> <p>Social and Human Capacity Model: Correlations with prison admission: Educational strength ($r = -.19^{**}$), self-efficacy ($r = -.12^*$) and employment problems ($r = .21^{***}$). Path analysis indicates self-efficacy mediates educational strengths ($\beta = .24^{***}$), relationship dysfunction ($\beta = -.38^{***}$), and employment difficulties ($\beta = -.12^*$)</p> <p>Conclusions: Women offenders create unconventional pathways to crime, based upon life experiences that are not seen in men.</p> <p>Childhood abuse created indirect effects from its impact that lead to offending. Relationship dysfunction places women at an indirect risk for offending. Lack of support in family relationship and self-efficacy also affects the capital pathway, demonstrating gendered and non-gender utility of this model.</p>
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	QA	Sample/Follow-up	Measures	Results (<i>with reoffending unless otherwise stated</i>) and Conclusions	Null Results
17.	Salisbury et al. (2009)	73.01% Up to 44.2 months follow-up	156 American female offenders, admitted to the department of corrections between October 2000 and January 2001. Level of Service Inventory and Custody Classification Scale (to classify security level in custody) plus a number of scales thought to tap gender-responsive needs: Mental health, Rosenberg Self-Esteem scale, Sherer Self-Efficacy scale, Relationship scale, Parental Stress, Childhood/Adult Victimization	<p>Results: Rearrests correlated with a number of items from the LSI-R and Gender Specific needs assessment; educational history/employment (.14*), adult victimisation (.17*), adult emotional abuse (.22*), harassment (.15, $p < .10$) and technical violations: parental stress (-.18*), LSI total score .20*** and LSI-R factors .12* - .21**</p> <p>Self-efficacy with technical violations $r = -.13$ $p < .10$</p> <p>LSI-R total for any failure .21**, LSI-R plus gender responsive predictors .21**, LSI-R total plus abuse items .22**</p> <p>Conclusions: Adult victimisation, self-efficacy and parental stress were risk factors for women upon release. Furthermore, the addition of gender responsive factors improved performance of the LSI-R. Authors conclude that results encourage continued exploration of gender-responsive factors and note that factors based solely on criminality may not be the most appropriate for females when considering risk evaluations.</p>	Gender-responsive needs, such as self-esteem, mental health, and relationships, were not significantly correlated with the community recidivism data. In fact, mental health and self-esteem were not significantly related to any of the correctional outcomes

	QA	Sample/Follow-up	Measures	Results (<i>with reoffending unless otherwise stated</i>) and Conclusions	Null Results
18.	Sandler & Freeman (2009)	84.61% 1466 American female offenders convicted of a sexual offense in New York State 5 year follow-up	Crime history details, and reoffending details, gathered from computerized database	<p>Results: sexual recidivists were more likely to have at least one prior misdemeanor conviction, $\chi^2(1, N = 1,466) = 15.5^{***}$, at least one prior felony conviction, $\chi^2(1, N = 1,466) = 21.5^{***}$ and at least one prior drug conviction, $\chi^2(1, N = 1,466) = 25.***$, than those offenders who did not</p> <p>Those with a child victim in prior conviction more likely to sexually recidivate (OR 1.44)</p> <p>For sexual recidivists, child victims, prior offences (non-violent), and age (older) increased risk.</p> <p>Conclusions: Female sex offender recidivists similar to males as they did not confine crimes to sexual crimes, and were more like general offenders (wider offending history). Further supported by the fact that many of the re-offenders were for promoting prostitution, which has a financial gain (akin to general offending motivations)</p> <p>Differences are noted between genders with females having an increased offender age contrary to male risk factors (where raised age associated with decreased risk), however this was mostly for promoting prostitution of a</p>	No additional risk for violence history for sexual recidivism

	QA	Sample/Follow-up	Measures	Results (<i>with reoffending unless otherwise stated</i>) and Conclusions	Null Results
18.	Sandler & Freeman (2009) cont.			<p>child. When this offence was removed, the age variable was no longer significant.</p> <p>Authors conclude that on the whole, female sexual offenders are often low level, nonsexual offenders who are not specialised sex offenders as it sometimes seen in males, but rather are in a special class of female offenders who have both general and sexual offending.</p> <p>Caution use of traditional actuarial sexual risk assessments on female offenders due to different risk factors and encourage more research with a larger sample due to low rates of sexual recidivism.</p>	
19.	Seigel & Williams (2003)	84.61%	411 women; 206 women who were victims of child sexual abuse and a matched control group of 205 women with no history of abuse (83% African American, from low SES background)	Abuse and criminal history details gathered from hospital records and court records	<p>No differences with match sample in rates of property crime or prostitution.</p> <p>Victimization status was not associated with juvenile arrests in general (only violent</p>
			20 year follow-up	<p>Results: Victims had greater rates of any type of adult offending compared to control group (McNemars χ^2 6.224**), and the largest difference was found for drug related crime.</p> <p>Child abuse increased odds of arrest for offending by 1.955(odds ratio) compared to control</p> <p>More likely to have arrest for violence as a juvenile compared to control (McNemars χ^2</p>	

19. Seigel &
Williams
(2003)
cont.

5.026*, OR 2.1)

arrests).

The child sexual abuse victims were more commonly arrested for violent offenses (13.6%) than for property offenses (9.2 %); girls in the comparison group were arrested in equal proportions for violent and property offenses (6.3% each).

13.2 % of the 53 girls victimized by a stranger or relative stranger were arrested for running away compared to none of the 63 girls victimized by a family member, $\chi^2 = 9.186$, $p = .027$. Among the 69 girls in the sample who were arrested, abuse victims were significantly more likely to have been adjudicated delinquent (31.7% vs. 7.1%), $\chi^2 = 5.901$, $p = .015$. In addition, all of the girls who were sent to a juvenile institution ($n = 7$) were abuse victims, $\chi^2 = 7.087$, $p = .008$.

Nearly twice as many victims (20.4%) as matches (10.7%) were arrested as adults, and the rate for violent offenses was more than two times greater (9.3% vs. 4.4%).

The largest difference in adult offending was for arrests for drug offenses, in which 7.8% of the victims were arrested, whereas only 1.5%

19.	Seigel & Williams (2003) cont.			<p>of the comparison group was. Larger percentages of victims than matches were arrested for property offenses (9.2% vs. 6.3%) and prostitution (2.4% vs. 1.5%) as well. The abused women were arrested for adult violent offenses as often as they were for adult property offenses (9.3% each), whereas the matches were arrested more often for property offences (5.4%) than violent offences (4.4%).</p> <p>Conclusions: Childhood sexual abuse victims were significantly more likely than their matched counterparts to be arrested as an adult for offences, even after other family difficulties were controlled for.</p> <p>These offences were most likely drug or violent offences and the authors hypothesize that these are reactions to the abuse (either escape, or misplaced anger)</p>	
20.	Van Voorhis et al. (2008)	65.38%	<p>3 probation, prison and 2 pre-release samples across three states of female offenders (total N = 1626)</p> <p>Follow-up 6 – 24 months</p>	<p>Variety of gender specific factors based upon literature</p>	<p>Results: Criminal history ($r = .32^{**}$), Antisocial attitudes ($r = .22^{**}$), Family conflict ($r = .21^{**}$), financial/employment ($r = .22^{**}$), Education/employment ($r = .27^{**}$), financial ($r = .25^{**}$), education ($r = .19^{**}$), accommodation ($r = .25^{**}$), leisure/recreation ($r = .13^*$), antisocial associates ($r = .23^{**}$), mental health history ($r = .22^{**}$), substance abuse ($r = .33^{**}$)</p>

	QA	Sample/Follow-up	Measures	Results (<i>with reoffending unless otherwise stated</i>) and Conclusions	Null Results
20.	Van Voorhis et al. (2008) cont.			<p>Gender Specific Factors:</p> <p>Housing safety ($r = .23$ p**), adult victimization ($r = .18$**), childhood victimization ($r = .24$**), parental stress ($r = .24$**), Anger ($r = .15$**), anxiety/depression ($r = .23$**), psychosis ($r = .31$**), relationship dysfunction ($r = .28$**), family support ($r = -.20$**), self-efficacy ($r = -.22$**), self-esteem ($r = -.22$**).</p> <p>Study 2:</p> <p>Gender responsive assessment with gender neutral tool $r = .27-.38$**, AUCs .74 (with gender neutral items only $r = .16-.31$**, AUCs .59-.72).</p> <p>Conclusions: Importance of gender specific factors. Adding gender responsive items improved predictive value of traditional gender neutral items.</p>	

	QA	Sample/Follow-up	Measures	Results (<i>with reoffending unless otherwise stated</i>) and Conclusions	Null Results
21.	Verbrugge et al. (2002)	61.54% 486 Canadian federally sentenced female offenders with substance abuse problems, released conditionally between 1995 and 2000 Follow up was until expiry of condition or revocation (mean 247 days for those returned to prison or mean 685 days for those that remained in the community)	Several IVs examined: age, admission offence type, substance abuse treatment, and the Community Intervention Scale (CIS; used by parole officers to determine offenders' risk of failure on conditional release and the level of community support/supervision needed, usually for men) Reoffending measured (including technical violations) through official records	Results: 32% reoffended, mostly with a non-violent crime Age negatively correlated with reoffending (-.11 $p < .05$) Nonviolent offenses correlated with new nonviolent offenses (.16 $p < .001$) and Robbery correlated with future violent offense (.21 $p < .001$) Employment and Community factors on CIS related to nonviolent offending (.11, .10 $p < .05$), CIS risk total moderately related to a new offence $d = .08$, $z = 3.21$, $p < .01$ Logistic regression final model included six predictors: Release Age (Negative); CIS Need; Employment; Substance Abuse; Attitude; and Admission offence Theft / Fraud / Break and Enter. The final model predicted revocation at better than chance levels, Likelihood Ratio χ^2 (5, $N = 483$) = 82.61, $p < .001$. The estimated R^2 of the final model was .16. Prediction success was moderate; 72.6% of the offenders were correctly classified. Conclusions: Prior offense history was most predictive for reoffending, especially robbery and theft offenses. They conclude that secondary motives need to be considered (e.g. monetary) in the commission of these reoffenses	No measured factors in this study related to violent reoffending ($r = -.06$, $p > .05$). Index offence of assault, sexual offence or drug offence or homicide not associated with reoffending Substance abuse treatment had no effect on recidivism

	QA	Sample/Follow-up	Measures	Results (with reoffending unless otherwise stated) and Conclusions	Null Results
22.	Warren et al. (2005)	76.92% 132 American female inmates in a maximum security prison No follow-up, retrospectively postdicted	Historical Clinical Risk Management -20 (HCR-20)/ Psychopathy Checklist – Revised (PCL-R)	<p>Results: Those convicted of murder scored significantly lower on both the PCLR and HCR-20 than those who had not been charged with murder. Property crime scored higher on both the PCL-R and HCR-20 than those who did not have convictions for property crimes</p> <p>Highest PCL scores associated with shoplifting, least likely with murder, highest HCR20 scores associated with robbery, lowest with murder.</p> <p>PCL-R and HCR-20 total non-violent crime ($r^2 = .11$, $r = .33$), murder ($r^2 = .08$, $r = .28$)</p> <p>PCL-R and AUCs ranged from .46 (for violent) to .71 (for minor crimes)</p> <p>HCR-20 and minor crimes (AUC .74) – not a good predictor for violent crimes (AUC = .46, .49), but yes for non-violent crimes</p> <p>Conclusions: Both HCR20 and PCLR correlated to one another, but demonstrated an inability to postdict violence occurring female offenders. Better at prosdective ability for non-violent offences. Author’s caution use of tools developed on male offenders, on female offenders.</p>	<p>Mean PCLR and HCR20 scores not significantly different between those with violent, sexual, drug crimes or institutional misconduct</p> <p>AUC for PCL and first-degree murder (.30),</p> <p>AUC for HCR20 and first degree murder (.30)</p>

	QA	Sample/Follow-up	Measures	Results (<i>with reoffending unless otherwise stated</i>) and Conclusions	Null Results
23. Warren et al. (2002)	80.77%	261 American females incarcerated in a maximum security prison No follow-up, retrospective/postdicted prior violence	Measures include the Brief Symptom Inventory (BSI), Barratt Impulsivity Scale (BIS), Prison Adjustment Questionnaire (PAQ), Structured Clinical Interview for DSM-IV (SCID-II)	<p>Results: Using logistic regression, Cluster A PD predicted current conviction of a violent offense (OR 2.5), and current conviction of prostitution (OR 6.35). Cluster B predicted self-reported violence within institution (OR 3.26); cluster C predicted incarceration for regulatory crimes (OR 1.96).</p> <p>Specific cluster b diagnosis: Narcissism predicted current any violent offense (OR 7.57), ASP and Borderline predicted self-reported institutional violence (OR 3.18, 2.88)</p> <p>Conclusions: Differing patterns of associations between personality disorders and criminality and violence. Authors point to the chronicity of PD and its variety of behaviours such as impulsivity, recklessness, substance abuse and problem relationships that likely contributed to behaviours that to lead to offending and incarceration.</p> <p>Also noted high levels of comorbidity between PDs, and somewhat unexpected finding of Cluster A PD related to any violent conviction, including homicide and prostitution. Authors conclude this is underpinned by bizarre thinking and anonymous behaviour (e.g. sexual activity).</p>	Histrionic PD not related to any crimes

	QA	Sample/Follow-up	Measures	Results (<i>with reoffending unless otherwise stated</i>) and Conclusions	Null Results
24.	Wiezman-Henelius et al. (2004a)	80.77% 61 Finnish violent female offenders who were incarcerated, gathered over the 12 months of the year 2000, plus matched control group (with no violence) No follow-up, retrospective	Structured interview assessing factors found in literature to be associated with female violence, demographics and violence data, Psychopathy Checklist – Revised (PCL-R), Structured Clinical Interview for DSM-IV (SCID-II), Wechsler Adult Intelligent Scale (WAIS) Recidivism (Y/N) due to small number of violent recidivists	Results: Compared to non-offenders, offenders had parents who were divorced ($x^2 = 9.36^{**}$), had witnessed abuse ($x^2 = 4.76^*$), were in a foster home ($x^2 = 8.14^{**}$), detention centre ($x^2 = 6.80^{**}$), maternal drinking ($x^2 = 4.91^*$), child physical abuse ($x^2 = 6.03^*$), adult physical abuse ($x^2 = 32.74^{***}$), adult psychological abuse ($x^2 = 11.73^{***}$), self-harm ($x^2 = 38.34^{***}$), inpatient psychiatric care ($x^2 = 15.14^{***}$), substance abuse ($x^2 = 43.78^{***}$), stressful events one year prior to offending (abuse, $x^2 = 13.09^{***}$, partner substance abuse $x^2 = 20.93^{***}$). Repeat violent offender had early age at first violent offense compared to first time violent offender $t(59) = 5.18^{***}$ and less emotionally close to victim compared to first time offender A history of non-violent criminality and substance abuse was more frequent among the repeat violent offenders than the first-time offenders $\chi^2 = 9.28^{**}$ Recidivists had witnessed violence more often in their family $\chi^2 = 9.67^{**}$ and had divorced parents ($x^2 = 11.44^{***}$), in foster home ($x^2 = 12.62^{***}$), no differences in history of victimization, non-violent history 9.28^{**}	No relationship with childhood sexual abuse for either group

24. Wiezman-
Henelius et
al. (2004a)
cont.

Recidivists were more likely to have PD
(antisocial $\chi^2 (1, N = 61) = 23.75^{***}$ or
Borderline $\chi^2 (1, N = 61) = 6.90^*$ and had
higher PCL scores (both factors) compared to
first time offenders.

Conclusions: Women who behave violently
have had more adverse experiences in
childhood and adulthood compared to non-
offenders also have more psychopathology and
stressful life experiences compared to non-
offenders.

* $p < .05$, ** $p < .01$, *** $p < .001$
QA = Quality Analysis

Narrative Data Synthesis

Criminal History

Criminal History variables demonstrated a unanimous relationship with recidivism over eight studies (Table 3). In fact, younger age at first offense and increased number of past offenses carried so much predictive weight that these variables outperformed the entire contribution of the LSI-R (Folsom & Atkinson, 2007), as well as showing the strongest relationship with recidivism compared to utilising a correctional classification scale (Community Intervention Scale; Verbrugge, Nunes, Johnson & Taylor, 2002). Criminal history demonstrated the strongest relationship ($r = .32, p < .01$) compared to all other factors in a multi-site study by Van Voorhis and colleagues (Van Voorhis, Salisbury, Wright, & Bauman, 2008) and was a significant difference between violent recidivists and non-recidivists (Weizmann-Henelius, Viemero, & Eronen, 2004a). Examining female sexual offenders, those who sexually recidivated were the most likely to have prior histories of non-violent criminal activity compared to those who did not reoffend (Sandler & Freeman, 2009). Similarly, younger age at admission to prison, prior adult arrest, and violence towards staff in prison demonstrated a moderate relationship with recidivism (Bonta et al., 1995) and criminal history increased the odds of reoffending by 9.36 in females charged with homicide (Putkonen, Komulainen, Virkkunen, Eronen, & Lonnqvist, 2003). The “big four” (criminal attitudes, criminal peers, antisocial personality, criminal history) accounted for the majority of explained variance in recidivism, and this was often beyond the value that gender specific variables added (e.g., such as abuse history, self-harm, mental health problems; Loucks & Zamble, 1999; Rettinger & Andrews, 2010).

History of Abuse

History of abuse and/or maltreatment was examined in 10 out of the 24 studies (Table 3), with results being mixed as to the role victimisation plays in reoffending. Despite experiences of abuse being over represented in their incarcerated population (61.4% had a history of physical abuse, 54.2% had a history of sexual abuse), Bonta et al. (1995) found no effect of any type of abuse on reoffending. Similarly, Rettinger and Andrews (2010) found no effect of abuse on recidivism. They highlighted the fact that data collected regarding this variable relied on a dichotomous designation

and, as a result, may not have captured important nuances of abuse experiences, such as the seriousness or impact. This is a similar criticism that could be levied against Anumba, Dematteo and Heilbrun (2012) where no effect of victimisation was found for offending, and abuse history was collapsed into a dichotomous variable, thus losing variance and reducing the likelihood of finding a significant relationship between the two. Notably, studies that did demonstrate the importance of abuse and victimisation in predicting recidivism tended to use more variables regarding abuse, including examining different abuse types, number of abuse experiences or the age at which the abuse occurred. Despite this, all the studies which found no effect for history of abuse as a risk factor were assessed as having a strong quality assessment due to methodological rigor.

However, quality analysis was not always indicative of the predictive ability for this variable as a risk factor, with history of abuse demonstrated as a risk factor for recidivism in some of the top rated studies of the entire review (e.g., Kimonis et al., 2010; Seigel et al., 2003). In one of the few samples to utilise a control group, Seigel and Williams (2003) found that victims of child sexual abuse were more likely (odds ratio 1.955) to be arrested for an offence as an adult, even after other family difficulties were controlled for, compared to a non-abused control group. These offences were most often drug or violent offences, and were theorized by the researchers to be reactions to the childhood abuse, either to escape from the trauma, or misplaced anger (Seigel & Williams, 2003). In another study that demonstrate a positive relationship between victimisation and abuse, adult and childhood victimisation was minimally related ($r = .18, p < .01, r = .24 p < .01$ respectively) with reoffending (Van Voorhis et al., 2008), however this study received a low quality assessment score due to methodological confounds with its sample and data collection.

In contrast, three studies also demonstrated mixed support for this variable, which did not appear to be based upon the quality assessment of the study, but may have been attributable to the depth of data collected regarding this variable. Compared to non-offenders, violent offenders were more likely to have experienced childhood physical abuse, or adult physical and/or psychological abuse (Weizmann-Henelius et al., 2004a). Despite these findings, in the same study, no relationship was found between childhood or adult sexual abuse and reoffending (Weizmann-Henelius et al., 2004a). Adult victimisation was also noted to be related to recidivism ($r = .17, p < .01$) in Salisbury,

Van Voorhis and Spiropoulos' study (2009) whereas childhood abuse was not. While it is impossible to truly assess the results from the Loucks & Zamble study (1999) due to a lack of reported detail in their write-up, they reported that while recidivism was not predicted by any abuse or maltreatment, childhood sexual abuse demonstrated a relationship to historical violent offending.

These inconsistent results are perhaps understood more clearly when its effect is considered as a mediating factor which was examined by studies that used more complex statistical analyses. The relationship between childhood abuse and offending was found to be mediated by externalizing pathology (Kimonis et al., 2010). Another indirect relationship was noted by Salisbury and Van Voorhis (2009). Using path analysis, abuse was found to lead to mental health and substance abuse problems, which in turn increased the likelihood of prison admission. Given the conflicting evidence regarding abuse, it appears that a partial or mediating effect may better explain the role that abuse plays in reoffending. Thus, the effect of abuse in pathways to offending may be found in the interaction between victimisation and dynamic factors.

Mental Health

Mental health factors were examined in seven studies, and the majority of these demonstrated that this was an important risk factor for female offending, especially anxiety and depression. The highest rated study found that mental health factors, such as self-harm, suicide attempts and active psychosis, demonstrated small relationships with general and violent reoffending ($r = .10 - .13$) but added no predictive value beyond that of gender neutral factors. However, the authors cautioned that their data collection for gender specific variables relied on file data and sometimes lacked detail (Rettinger & Andrews, 2010). This was similar to difficulties noted by Salisbury et al. (2009) who also found no effect of mental health on reoffending, but acknowledged problems with data collected to fulfil this variable.

One study found that history of self-harm was a significant difference between those who reoffended and those who did not (Bonta et al., 1995). Additionally, externalising pathology, anxiety and depression have been found to mediate the effect of childhood abuse on reoffending in two studies (Kimonis et al., 2010; Salisbury & Van Voorhis 2009). Mental health problems also mediated

the effect of relationship dysfunction on prison admission (Salisbury & Van Voorhis, 2009). Even the lowest quality study echoed results from other studies in this area, demonstrating small positive relationships between reoffending and mental health factors such as psychosis ($r = .31, p < .01$) and anxiety/depression ($r = .23, p < .01$; Van Voorhis et al., 2008). In contrast, psychosis was found to decrease risk of recidivism in a sample of violent female offenders (Putkonen et al., 2003).

Substance Abuse

Substance abuse is an item that is commonly found on traditional risk assessment instruments normed on male populations and was examined by seven studies in this review. The highest rated studies mostly demonstrated the importance of this item as a risk factor for recidivism in females. While Bonta et al. (1995) found no effect of substance abuse on recidivism, substance abuse was found to be predictive of recidivism in two Finnish samples (Putkonen et al., 2003; Weizmann-Henelius et al., 2004). Substance abuse was also found to be an important mediator in the effect of relationship dysfunction and child abuse on prison admission (Salisbury & Van Voorhis, 2009). Lower quality studies were more likely to demonstrate that substance abuse was not predictive of reoffending (Loucks & Zamble, 1999; Verbrugge et al., 2002). However, Van Voorhis et al. (2008), a lower rated study, found that substance abuse exhibited a moderate relationship ($r = .33, p < .01$) with reoffending, and notably this was one of the strongest correlations presented in the entire study.

Personality Disorders

Personality traits and disorders were examined by four studies, which all demonstrated the importance of this item as a risk factor (Table 3). Cluster B personality disorders, such as antisocial personality disorder and borderline personality disorder increased the likelihood of general and violent reoffending in the community, as well as institutional violence (Putkonen et al., 2003; Weizmann-Henelius et al., 2004a). Similarly, in the study by Warren, Burnette et al. (2002), narcissistic personality disorder (cluster B personality disorder) predicted violent recidivism more so than any other personality disorder (odds ratio 7.57). Compared to other studies that explored this risk factor, Warren, Burnette et al. (2002) also specifically examined personality disorders other than cluster B disorders, finding that any personality disorder increased the likelihood of some sort of

offending. For instance, cluster A personality disorders (e.g., avoidant personality) increased the likelihood of violent offending (odds ratio 2.50) or prostitution (odds ratio 6.35), and cluster C personality disorders (e.g., schizoid personality) predicted incarceration for minor, non-violent offences (odds ratio 1.96). Salekin et al. (1998) examined personality traits (as measured by the Personality Assessment Inventory), noting small positive relationships between reoffending and antisocial traits ($r = .26, p < .05$), egocentricity $r = .27, p < .05$) and aggressive personality traits ($r = .29, p < .05$). Furthermore, antisocial traits were predictive of reoffending (AUC = .64). Notably, these personality traits can be seen as reflective of cluster B personality disorders, supporting the results from the previously discussed studies regarding the role of personality disorders as a risk factor for reoffending.

Psychopathy

Perhaps one of the most often cited personality types in understanding recidivism, is that of psychopathy, which was examined in seven studies using the Psychopathy Checklist Revised (PCL-R; Hare, 2003) or the Psychopathy Checklist Screening Version (PCL: SV). As noted with other factors, results were mixed across studies; however the majority of results indicated some utility of using this assessment tool in predicting violent and general recidivism (Loucks & Zamble, 1999; Weizmann-Henelius et al., 2004a). Only one study did not find any effect of the PCL-R in predicting recidivism over a one year follow-up, and this study is noted to be of high assessed quality for methodological rigor and sophisticated statistical analysis (Kimonis et al., 2010).

Mixed results for psychopathy were demonstrated in a sample of female offenders in a high secure prison where, contrary to other studies, the PCL-R was only predictive for non-violent, minor crimes (AUC = .71) and performed poorly when attempting to 'postdict' any violent offending (AUC = .55; Warren et al., 2005). Of note, the career criminals in this sample who engaged in repeat non-violent offending were likely to have PCL-R scores in the 20-30 range, below the traditional cut-off for psychopathy (Warren et al., 2005). The authors concluded that there are potential differences in the way that psychopathy is exhibited in women compared to men, especially concerning the demonstration of violence between the two genders (Warren et al., 2005).

Three studies also examined the individual factors of the PCL-R and contrasting results were found. Richards, Casey and Lucente (2003) and Salekin, Rogers, Ustad and Sewell (1998) both demonstrated that Factor 1 of the PCL-R was predictive of reoffending, with Factor 2 or PCL-R total score adding little incremental validity over Factor 1 on its own. This is in contrast to results from Eisenbarth et al. (2012) who demonstrated no effect of Factor 1 ($AUC = .58, p > .05$) for predicting recidivism, with all the predictive power accounted for by Factor 2 ($AUC = .64, p < .05$), whereas Loucks and Zamble (1999) found both factors to be important in predicting general reoffending. Interestingly though, most of the recidivists in the Salekin et al. (1998) study did not meet the criteria for psychopathy, perhaps suggesting a need for different cut-offs between genders.

Poverty /Employment/Education

This factor was demonstrated to be important in understanding female reoffending by most studies that examined it, with five of the six studies endorsing the concept, including the highest rated study of the review (Table 3). In an examination of gender neutral versus gender specific factors, poverty and personal misfortune played a significant predictive role in women classified as low risk ($AUC = .71, .70$). Interestingly, this same relationship was not seen in moderate or high risk women, suggesting a unique effect of poverty in this group (Rettinger & Andrews, 2010). Furthermore, poverty was one of the few gender specific variables that appeared to account for general recidivism in this group (and did not predict for moderate or high risk women). This echoes results by Bonta et al. (1995) who demonstrated that compared to those who did not reoffend, recidivists were more likely to be receiving welfare or rely on illegal income. The link between employment problems and reoffending was also demonstrated to be mediated by self-efficacy (weakening the relationship) and relationship dysfunction (strengthening the relationship between employment difficulties and reoffending; Salisbury & Van Voorhis, 2009). Employment problems were also correlated with prison admission ($r = .21, p < .001$, Salisbury & Van Voorhis, 2009).

Studies with lower quality scores also demonstrated support for this item as a risk factor. A measurement of poverty based on census data outperformed the LSI-R in its ability to predict reoffending (Holtfreter, Reising, & Morash, 2004). Furthermore, receiving social assistance decreased

chances of recidivism by 83% (Holtfreter et al., 2004). Lack of housing safety, financial and educational difficulties demonstrated a significant positive relationship with reoffending (Van Voorhis et al., 2008). While education was not demonstrated to be related to recidivism in the study by Anumba et al. (2012), it is noted that the variable relied solely on number of years in education and included no information regarding poverty levels or employment history and, as such, does not appear to be capturing the same information as was examined by the other five studies.

Family/Partner

Eight studies examined the role of family/partner variables on recidivism, with divergent results that do not appear to be influenced by the quality of the study as both the highest and lowest rated studies found that this factor was not connected to recidivism in female offenders (Table 3). Single parenthood, lack of a supportive network and criminal relatives (Anumba et al., 2012; Rettinger & Andrews, 2010) did not contribute to the prediction of recidivism, and could not offer predictive value beyond that of gender neutral factors (Rettinger & Andrews, 2010). This is contrary to results in the study by Bonta et al. (1995) where mothers with a partner were less likely to reoffend compared to single mothers. In another study, historical family factors such as having divorced parents, witnessing domestic violence, maternal drinking and adult psychological abuse were more prevalent in violent recidivists compared to first time offenders (Weizmann-Henelius et al., 2004a).

Two studies demonstrated mixed results utilising a correlational examination of family factors and recidivism. Both parental stress and relationship dysfunction demonstrated a modest relationship with recidivism (Van Voorhis et al. 2008), whereas only parental stress was significantly related in Salisbury and colleagues' study (2009). A proposed relational model was demonstrated by Salisbury and Van Voorhis (2009) in which substance abuse, depression and anxiety mediated the effect of relationship dysfunction. This lead to reduced self-efficacy, increased adult victimisation and resulted in prison admission.

LSI-R

The Level of Service Inventories (inclusive of all versions) demonstrated predictive validity in seven out of the eight studies that examined it, demonstrating a relative consistency between studies, regardless of the assessed quality. The highest quality studies were able to demonstrate moderate to strong predictive validity, beyond that of only illustrating a relationship with recidivism (e.g., AUC = .86 for violence recidivism, .87 for general recidivism, Rettinger & Andrews, 2010; AUC = .67 any recidivism, .62 for nonviolent recidivism, .67 for violent recidivism; Folsom & Atkinson, 2007) with a long follow-up time frame of several years. Furthermore, the performance of the LSI-R accounted for most of the predicted variability in reoffending, beyond anything that gender specific factors could add in incremental validity (Rettinger & Andrews, 2010). Additionally, Cox regression survival analysis demonstrated that higher scores on the LSI-R were associated with a shorter time to reconviction (Palmer & Hollin, 2007).

In the lesser quality studies, significant relationships were also consistently found with LSI-R scores and recidivism with correlations ranging from small ($r = .20$ $p < .001$ for LSI-R total score, Salisbury et al., 2009; $r = .13$ $p < .01$ - $.32$ $p < .001$ for LSI-R subscales, Van Voorhis et al., 2008) to moderate ($r = .51$ $p < .01$ for LSI total and $.53$ $p < .001$ for parole failure, Coulson et al., 1996).

Two studies, with moderate quality analyses, found mixed or null results for the predictive validity of the LSI-R. Examining the role of poverty in conjunction with the LSI-R in predicting reoffending, Holtfreter et al. (2004) found that no LSI-R subscales were correlated with re-arrest, except for the financial scale and odds ratios for the LSI-R total for re-arrest were small compared to odds ratios for a measure of poverty (1.06 versus 5.46). Reisig et al. (2006) examined the predictive ability of the LSI-R across female offenders grouped into Daly's (1994) gendered pathways to crime. In a similar vein to the Holtfreter et al. (2004) study, Reisig et al. (2006) found that the LSI-R only predicted reoffending for females in the economically motivated group. Furthermore, the LSI-R in this study also over-classified the risk level of women in these gendered groups.

Other Risk Assessments

In addition to the LSI-R, six studies also explored risk assessments traditionally utilised with male offenders, including widely used risk assessments such as the HCR-20 and VRAG, plus lesser utilised measures such as the SAQ, CAT and a custody classification scale (CIS). These studies were on average of lesser quality, but somewhat consistently demonstrated the effect of gender neutral factors in predicting recidivism in female offenders. Two studies examined the HCR-20 and demonstrated mixed results, demonstrating no predictive value in a small sample of German female offenders (AUCs ranged from 0.56 – 0.61, $p > .05$; Eisenbarth et al., 2012) and moderate predictive value using a sample of American female offenders (Warren et al., 2005). Notably, the HCR-20, designed to assess violence in male offenders, demonstrated extremely poor ability to predict violent recidivism in female offenders (AUC = .46) and only appeared to work when predicting non-violent, minor offences (AUC = .74; Warren et al., 2005). The VRAG also demonstrated good predictive ability (AUC = .72, $p < .05$; Eisenbarth et al., 2012).

Less popular risk assessment measures were also noted to demonstrate a connection with recidivism in female offenders. The Child and Adolescent Taxon scale (Quinsey et al., 2006) is an eight item self-report scale designed to assess problem behaviours in adult offenders that occurred before the age of 16. Originally designed as a simplified measure to assess antisocial behaviour and related traits in males, it demonstrated reasonable predictive accuracy for violent, non-violent and any reoffending (AUC = .72, .61, .68 respectively; Folsom & Atkinson, 2007) in female offenders. However, the predictive power of the CAT did not add anything beyond consideration of age at first offence and number of prior convictions (Folsom & Atkinson, 2007). Similar accuracy was found for another self-report measure, the Self-Assessment Questionnaire (SAQ) which is a 72 item scale designed to assess risk/need areas which are connected to violent and non-violent recidivism (Loza, Villeneuve, & Loza-Fanous, 2002). In a sample of female offenders, the SAQ was predictive of recidivism (AUC = .70) and was able to distinguish between low, moderate and high risk groups in the length of time it took them to return to prison. A custody classification scale (Community Intervention Scale; CIS), used by parole officers within the Canadian correctional system to determine community resources and planning for offenders upon release was also examined. Verbrugge et al.

(2002) noted moderate predictive utility for the CIS need score (odds ratio 1.83), however more variance was accounted for by offence history variables ($\beta = 1.10$, OR = 3.01) compared to the CIS need score ($\beta = .61$, OR = 1.83).

Only one study in the review attempted to evaluate a gender-responsive risk assessment tool. Van Voorhis et al. (2008) evaluated a gender responsive risk assessment measure, called the “trailer” which was meant to supplement current gender neutral scales such as the Level Service Inventory. The gender responsive tool alongside the gender neutral assessment produced moderate – good predictive accuracy (AUC = .62 – .74 across data collection sites), which appeared to improve the accuracy of gender neutral tools when used on their own (AUC .59 - .72). Notably though, this study received a low quality analyses score due to apparent confounds in how the data was collected.

Protective Factors

Three studies examined protective factors in female offenders (Table 3), Salisbury and Van Voorhis (2009), Salisbury et al. (2009) and Van Voorhis et al. (2008). Notably, all studies that examined protective factors were undertaken by the same group of researchers, highlighting the need for additional researchers to examine this topic. Furthermore, quality analyses of these studies fell within the moderate to low range. Salisbury and Van Voorhis (2009) found that educational strength and self-efficacy had a small negative relationship ($r = -.19$, $p < .01$, $r = -.12$, $p < .05$, respectively) to prison readmission, and these strengths mediated the effect of increased relationship dysfunction and employment difficulties that were associated with reoffending. Van Voorhis et al. (2008) found a slightly stronger, and direct, negative relationship between increased self-esteem, positive family support and high self-efficacy with recidivism, however correlations would still be considered small (r s ranged from $-.20$ to $-.22$, $p < .01$). However, using a smaller sample and similar methodology and analyses, Salisbury et al. (2009) found negligible results regarding the effectiveness of protective factors such as self-esteem and self-efficacy ($r = -.13$, $p < .10$) in connection with technical violations and no relationship with re-arrests. Overall, the impact of protective factors in female offenders appears small and lacking in inferential statistics to emphasise predictive relationships, but still encourages further exploration of the importance of strengths in female offenders.

Table 3. Summary of factors predictive of recidivism in female offenders

	QA %	Hx. Abuse	Sub. abuse	Mental Health ^a	PD	Poverty /Work	Family/ Partner	PCL-R	LSI-R	HCR- 20/ CAT/ VRAG/ SAQ	Crim. Hx.	Prot. Fact.
1.Rettinger et al (2010)	92.31	✗		✗		✓	✗		✓			
2.Kimonis et al. (2010)	84.61	✓ ^b		✓				✗				
3.Sandler et al. (2009)	84.61										✓	
4.Seigel et al. (2003)	84.61	✓										
5.Putkonen et al.(2003)	84.61		✓	✗	✓						✓	
6. Anumba et al.(2012)	80.77	✗				✗	✗					
7.Bonta et al. (1995)	80.77	✗	✗	✓		✓	✓✗				✓	
8.Salisbury & Van Voorhis (2009)	80.77	✓ ^b	✓	✓		✓ ^b	✓ ^b					✓
9.Warren et al. (2002)	80.77				✓							
10.Wiezman et al. (2004)	80.77	✓✗	✓		✓		✓	✓			✓	
11.Warren et al. (2005)	76.92							✓✗		✓✗ (HCR20)		
12.Holtfreter et al. (2004)	76.92					✓			✗			
13. Eisenbarth et al. (2012)	73.07							✓ ^(F2)		✓ ^(VRAG) ✗ ^(HCR20)		
14.Folsom et al., (2007)	73.07								✓	✓ ^(CAT)	✓	
15. Palmer & Hollin (2007)	73.07								✓			
16. Salisbury et al. (2009)	73.07	✓✗		✗			✓✗		✓			✗
17.Reisig et al. (2006)	69.23								✓✗			
18.Richards et al. (2003)	69.23							✓ ^(F1)				
19.Salekin et al. (1998)	69.23				✓			✓ ^(F1)				
20. Coulson et al. (1996)	65.38								✓			
21.VanVoorhis et al. (2008)	65.38	✓	✓	✓		✓	✓		✓	✓ ^{(trailer)^c}	✓	✓
22.Verbrugge et al. (2002)	61.54									✓ ^(CIS)	✓	
23. Loza et al. (2005)	57.69									✓ ^(SAQ)		
24. Loucks & Zamble (1999)	50.00	✓✗	✗				✗	✓			✓	
Total(for/against)		+7/-6	+4/-3	+4/-3	+4	+5/-1	+5/-5	+6/-2	+7/-2	+6/-2	+8	+2/-1

^a Mental Health includes inpatient psychiatric, history of self-harm or suicide attempts; ^b Indicates mediating effect, not direct, ^c the 'trailer' is a gender responsive supplement designed in this study to be used alongside tools such as the LSI-R
 ✓ Item demonstrates relationship/predictive value with offending, ✗ Item examined but non-significant results
 F1- Factor 1 on the PCL-R was predictive, total and Factor 2 were not, F2 – Factor 2 was predictive, not F1
 QA: Quality Analysis

Discussion

There is a lack of understanding how best to predict a woman's risk to reoffend (Nicholls et al., 2005) and reviewing research in this area has not fully explained key risk factors for women. The aim of this review was to synthesise research examining risk factors for reoffending in females in order to develop a clearer picture of risk assessment in this population. While a number of factors have been explored, which factors are most significant is unclear and, depending on which studies are consulted, results may contradict one other. The findings will be discussed in terms of the four main objects of this review.

1. Determine what risk factors are significant in distinguishing recidivists from non-recidivists

Few studies reported consistent results regarding which factors should be considered in the prediction of female offending. However, several important themes emerged. History of offending unanimously demonstrated strong links with recidivism, often outperforming other risk factors such as gender specific items (Rettinger & Andrews, 2010) or traditional risk assessments (e.g., Folsom & Atkinson, 2007). History of offending can be considered an integral and universal risk factor when predicting reoffending (Monahan, 1981), and its utility as a risk factor has been demonstrated in numerous studies in a range of offenders (Gendreau et al., 1996; Klassen & O'Connor, 1994) including sexual offenders (Cortoni, 2009; Hanson & Bussière, 1998) and inpatients (Bonta et al., 1998; Phillips et al., 2005). Similarly in this review, the presence of a personality disorder (or associated traits), specifically cluster B disorders, were demonstrated to be predictive of reoffending in all studies that examined this factor (Putkonen et al., 2003; Salekin et al., 1998; Warren, Burnette, et al., 2002; Weizmann-Henelius et al., 2004a). Personality disorders, especially cluster B disorders (such as antisocial or borderline types), have been consistently demonstrated in the wider literature to be associated with an increased risk of recidivism in both male and female offending groups (Walter et al., 2011; Yu, Geddes, & Fazel, 2012). Notably, the rates of personality disorder in prisoners usually exceed rates found in the community (Butler et al., 2006; Fazel & Danesh, 2002) and are usually associated with a range of difficulties including co-morbid mental health problems, substance abuse and disruptive life histories (Black et al., 2010).

Several of the reviewed risk factors demonstrated strong support, despite the presence of some null results. Poverty and work difficulties were a demonstrated risk factor in five out of the six studies that examined it. Females who reoffended were more likely to be receiving welfare and have a history of employment difficulties (Bonta et al., 1995; Holtfreter et al., 2004; Salisbury & Van Voorhis, 2009; Salisbury et al., 2009), with this factor demonstrating predictive value beyond that of a gender neutral assessment in a portion of female offenders (Rettinger & Andrews, 2010). These results have long been promoted by Social theorists who argue that women and their children are more likely to suffer the economic burdens of poverty, especially if belonging to minority groups (Holtfreter et al., 2004). Furthermore, the influence of these economic factors, together with family and partner variables may impact on more traditional criminogenic risk factors such as antisocial cognitions, attitudes and peers (Andrews & Bonta, 2010). So important are variables of this theme that they are included in traditional risk assessments and given the amount of research around this variable, it is likely to be a risk factor for both men and women (Hollin & Palmer, 2006). The results from studies in this review, however, suggest that the gender neutral assessments may not adequately consider poverty and economic factors within the context of female offending.

Psychopathy, as assessed by the PCL-R, was another risk factor in which the majority of studies examined provided evidence of its link to reoffending in females. Notably though, all the studies in this review that examined psychopathy utilised the PCL-R so it is unclear if contrary results are due to the concept of psychopathy being misrepresented in females, or if the measure itself is not accurately tapping into this concept in women. Differences were noted in the predictive value of PCL-R factors results suggesting that either Factor 1 on its own (Richards et al., 2003; Salekin et al., 1998), Factor 2 on its own (Eisenbarth et al., 2012) or both Factors together (Loucks & Zamble, 1999; Warren et al., 2005) offered the best predictive value. While results indicate a general pattern between PCL-R scores and future recidivism, caveats have been expressed regarding its application with female offenders. Given the sometimes conflicting evidence of studies examining the PCL-R, and the seriousness of the label, care should be taken when evaluating this construct in female offenders (McKeown, 2010; Nicholls, Ogloff, et al., 2005). Additionally, relationships between psychopathy

and recidivism have been generally less robust with females (McKewon, 2010), which may indicate inherent differences in the way psychopathy is exhibited in females (Forouzan & Cooke, 2005).

This review also indicated that reoffending in females can be fairly well predicted by risk assessments that have been normed on male populations, including the LSI-R, HCR-20, VRAG and self-report measures. However, results were not unanimously consistent across studies and, as such, care is still warranted in the universal applicability of these measures to all groups of females. According to this review, specific care may be the most necessary for the HCR-20. Although only two studies in this review examined it, predictive validity for it appeared unexpectedly low and unable to predict violent recidivism despite its intended design as a violence risk assessment tool. As was discussed at the beginning of this chapter, research has previously noted that the successful performance of risk assessments to predict reoffending vary between male and female offenders, indicating the need for further research in this area.

Other factors explored in this review, such as the role of child maltreatment, mental health problems and family/partner factors, all yielded inconsistent results, with almost equal amounts of studies demonstrating evidence both for and against each of these factors. While childhood abuse and neglect was one of the most heavily examined risk factors, it yielded contradictory results, making it difficult to draw conclusions regarding how abuse may be linked to risk of reoffending. These contrary results may be due to limitations in the data collection where gathered abuse information lacked depth, frequently utilising a dichotomous variable rather than examining various types and frequencies of historical abuse experiences. However, small consistencies have been noted where more complex relationships between risk factors for female offenders are examined. Results from this review (e.g., Kimonis et al., 2010; Salisbury & Van Voorhis et al., 2009) are reflected in other research that also considered mediating and indirect relationships between offending and historical abuse variables. For example, early childhood abuse was indirectly related to adult criminality, mediated by adolescent problems including substance abuse and antisocial behaviours (Grella, Stein, & Greenwell, 2005). Furthermore, adult violent reoffending was directly related to childhood trauma (witnessing violence or experiencing a death), although this relation was small ($r = .09, p < .05$). Similarly in another study that utilised a 20 year follow-up with a matched control group, gender

differences were noted regarding the mediating effect of alcohol on the relationship between child abuse and adult criminality (Widom, Schuck, & White, 2006). Whereas males demonstrated a direct path between childhood abuse and adult violent offending, the relationship was mediated in females by problematic alcohol use (Widom et al., 2006). Given the complexity of treatment needs, including dynamic risk factors presented by female offenders, consideration of mediating effects on the relationship between abuse and offending makes intuitive sense, as we consider the multifaceted impact of childhood abuse and the resulting psychological sequelae which persist into adulthood. Regardless of the role of abuse as a risk factor, it is undeniable as an important area of intervention to improve the overall well-being of an individual (Bonta et al., 1995). While this factor may not directly influence reoffending, victimization has a direct impact on overall functioning and quality of life. It is this which may expose females to increased destabilisers and vulnerabilities to dynamic risk factors such as substance abuse and mental health difficulties.

Similarly to results found for abuse/maltreatment as a risk factor for reoffending, questions still remain regarding the role of mental health, which has often been cited to be essential in understanding female offending. This review did present some consistency in results, with three studies indicating that anxiety and depression may increase risk of recidivism (Brennan et al., 2012; Salisbury & Van Voorhis, 2009; Salisbury et al., 2009), however it is unclear how other mental health factors such as self-harm behaviours and psychosis are linked to risk of reoffending. Women offenders have traditionally been found to have high rates of mental health problems, often arising from substance misuse and victimisation, which are over represented in prison populations (Moloney et al., 2009). In the same way victimisation appears to characterise female offenders, so too does a variety of mental health issues. Comparably, the relationship between mental health needs and recidivism may be multifaceted, with direct and indirect effects on offending and dynamic risk factors.

Results also appeared highly divided over the role of family and partners as a risk factor for recidivism, again making it difficult to draw conclusions regarding this item as a risk factor. Notably, difficulties in drawing conclusions are partially attributable to the variety of information collected

under this factor, such as single motherhood, dysfunctional intimate relationships and difficulties with family relationships. It is likely that this risk factor could be teased out into several sub-topics to produce a greater level of clarification. It has been noted that women are more likely to be the primary caregiver in their families; therefore, incarceration can cause serious disruption to their children (Ministry of Justice, 2009) and be an intense stressor and trigger to further mental health problems when separated from their children (Sorbello, Eccleston, Ward, & Jones, 2002). Family factors can also be closely linked to the risk of poverty or other economical stressors. Acting as the primary provider for children adds an increased economic burden, potentially resulting in an increased likelihood of turning to an illegal source of income. However, there is also the potential that family ties, including motherhood, may act as a protective factor (Sorbello et al., 2002). Given the widely varying impact of family and parental factors on females, there is conceivable importance of this as a risk. However, the exact role and influence of this factor towards offending though is currently unclear.

2. Determine which risk factors will predict future violent, sexual or general offending

Few studies contained samples of adequate size in order to analyse differences between groups of recidivists (e.g., a stated shortcoming of Putkonen et al., 2003, Salisbury & Van Voorhis, 2009), with studies stating that due to low numbers, recidivism was often a collapsed variable into a dichotomous (yes/no) reoffending group (e.g., Eisenbarth et al., 2012; Kimonis et al., 2010). Only eight of the reviewed studies examined individual reoffending groups. Traditional risk assessments such as the LSI-R were demonstrated to be predictive of both violent and non-violent offending in women (Folsom & Atkinson, 2007; Rettinger & Andrews, 2010). However, other popular assessments used to assess risk, usually in violent offenders, demonstrated unexpected results. The HCR-20 and PCL-R were examined regarding their predictive ability for a variety of crime types. Unexpectedly, higher scores on each of these assessments were associated with minor, non-violent offending, in which violent crimes, including murder were predicted at less than chance levels

(Warren et al., 2005). As discussed above, these inconsistencies echo wider themes in the research regarding the applicability of traditional risk assessments on female offenders.

Only one study examined sexual reoffending in females, noting commonality in risk factors between female and male sex offenders such as having a child victim, and history of offending (Sandler & Freeman, 2009). However, differences were also found with the authors concluding that female sexual offenders do not appear to present as specialised sex offenders as is seen in males, but rather are a specific class of female offenders who engage in a wide range of offending, including sexual offending (Sandler & Freeman, 2009).

Results from the review also suggest that violent female recidivists are at an increased likelihood of having problems in their family or origin during childhood, including witnessing violence and experiencing physical and sexual abuse (Seigel & Williams, 2003; Weizmann-Henelius et al., 2004a). In addition, these violent offending women were more likely to have received psychiatric care during their lifetime and to be diagnosed with a personality disorder (Warren, Burnette, et al., 2002; Weizmann-Henelius et al., 2004a) and exhibit self-harming behaviours (Snow, 1997). Similarly, other research has shown that violent female offenders were twice as likely to report polysubstance misuse, compared to a non-offending community sample, and this substance misuse was predictive of the offending group's incarceration (Brunelle, Douglas, Pihl, & Stewart, 2009). Despite these results, it is unclear from the systematic review if any of these risk factors would also be evident in population of general or sexually offending females, and specific risk factors across offending groups have yet to be teased out.

In order to draw clearer conclusions regarding risk factors for specific types of offending, studies utilising larger mixed offending samples are needed. This will help determine if there are factors specific to each type of offending. It has been highlighted that specific needs and risk factors are likely to be different between offense types such as sexual versus non-sexual offenders (Hollin & Palmer, 2006), and this would be similar to that found with male offenders. High risk offenders, such as violent offenders or those in a maximum security custodial centre are also more likely to exhibit a greater degree and severity of risk factors and high risk offenders (Hollin & Palmer, 2006).

3. Assess the quality of these studies and evaluate the impact of these methodologies upon the results

Studies that were assessed exhibited quality scores falling widely between 50 and 92.31%. The lowest scores were granted for studies that had methodological issues such as generalisability, problems with data collection and their additive value to current literature (e.g., validation of measures not widely used, e.g., SAQ and CIS).

Follow-up periods and attrition issues were areas where studies frequently faltered, with one study losing 42% of their original sample (Reisig et al., 2006). While not all studies used follow-up time frames, the majority did. Follow-ups ranged from 6 months to 240 months (mean 55.71 months, 4.64 years, SD = 64.25, median = 3.3 years), which may have inadvertently introduced confounds to the study. For instance, Richards et al. (2003) proposed that bias may have been introduced into their sample given the level of attrition (25%), as those who appear to have “dropped out” from a treatment program may have been higher risk individuals and therefore are not captured in recidivism analysis. Short follow-up periods and attrition are potential confounds to any study that uses this design, but largely unavoidable when conducting research in this area.

As all samples utilised female offenders, they were often collected similarly; either a sample of offenders during a given time frame, or recruited on a voluntary basis. Those that had samples that did not rely on volunteers were deemed to have better methodological quality, as relying on voluntary participation may be producing a bias into the sample. In addition, data was usually collected similarly between studies, relying on interview and/or file data. Studies that relied on validated and standardized measures were deemed to be of better quality than those that relied on *ad hoc* file collection, as it was sometimes unclear how variables were operationalised.

Sample size and, as a result, cell sizes for specific variables were a common weakness of many of the studies, with small numbers making it difficult for full analyses to be conducted, including examining outcomes for specific offending groups. Sample sizes ranged widely from 61 to 1626 offenders. Overall, prevalence of female offenders, and rates of female offender recidivism are

low, thus resulting in a number of difficulties examining factors related specifically to this group. These factors are usually beyond the control of researcher and one of the inherent difficulties studying something that rarely occurs. Future studies must endeavour to have larger, more representative samples, with lengthy follow-up periods.

4. Highlight areas in need of future research, to ensure further elucidation of key topics.

It is evident that more research is needed to clarify risk factors important to predicting recidivism in females, including whether a gender responsive approach is essential to accurate risk prediction. Future research should continue to validate risk assessment instruments on female offenders, given the popularity of many of these measures and the highly varied results noted in this review (e.g., HCR-20). Additionally, it is evident that further research is needed to elucidate the concept and presentation of psychopathy in females, especially in regards to the role it plays in predicting recidivism. This review also indicated that research examining protective factors lacked breadth, as all studies exploring this topic were conducted by the same group of researchers. As such, replication of their findings is paramount to ensure generalisability and increase confidence in their results. To date, much of the research on strength and protective factors has been conducted with juvenile offenders, with few studies examining this area in female offenders. However, consideration of strengths can allow for a more positive and holistic picture of an individual, rather than focusing on risk alone (Andrews & Bonta, 2010).

Few of the factors examined in this review resulted in a consensus among researchers. Even those factors that did appear to be agreed upon between various studies (e.g. poverty/employment, personality disorders), questions still arose regarding the best way to assess risk in this area, the context in which this factor exhibits itself, and how its risk relates to other risk factors. Additionally, the majority of studies were from North American samples, indicating the need for research from other continents to increase the generalisability of results.

Future Considerations and Conclusions

While results show continued evidence for the differences between male and female offenders, they do not explain the function of these differences or how these differences may impact upon pathways of offending. This can be considered a limitation of many of the studies included within this review. While this review attempted to include grey literature by contacting authors regarding conference presentations and scanning reference lists of the final studies, it is acknowledged that key authors within the female offending field could have been contacted in attempts to obtain a wider range of unpublished research. As such, this systematic review lacks grey literature which may limit some of the conclusions drawn and introduce a publication bias into the results. While exclusion criteria are important to ensure a level of consistency in included studies, it is possible that potentially important research was not included in this review due to the sample of particular studies. For instance, consideration of adolescent offending literature may help illuminate important developmental considerations in understanding female offending, as does the consideration of mental health samples given the seemingly complex relationship between mental health and offending within this population. Regardless, results suggest that we cannot simply assume that what works and what is known about male offenders is directly transferable to female offenders. While the debate continues regarding gender specific and gender neutral approaches to female offending, the number of studies reporting differences between the genders cannot be ignored. These differences between the male and female offenders do not necessarily mean that gender neutral approaches are inappropriate, but they instead insinuate that gender neutral approaches may not be the most accurate way of assessing risk, identifying criminogenic need and portioning intervention resources.

Contradictory findings indicate that there is an obvious need for further research, especially regarding risk factors unique to female offenders. While it appears that there are similar risk factors between both men and women offenders, commonality does not necessarily equate to similar functions and aetiology of each risk factor (Hollin & Palmer, 2006). It has been noted that to date, there is no widely used risk assessment tool designed specifically for females, and while this is a lengthy and formidable process, it would demonstrate a change in focus from adaption of theories

based on males, to building a model of female offending from the ground up (Taylor & Blanchette, 2009). It is evident that empirical clarification is needed to support the theoretical basis that gendered pathways to offending are important to consider. Until such time, utilising adapted assessments for females is adequate (Hollin & Palmer, 2006; Taylor & Blanchette, 2009), but should not represent the final chapter in female risk assessment.

It appears that current research is in disagreement over the most appropriate approach to risk assessment with women. Despite evidence demonstrating the utility of utilising traditional risk assessment on a female offending population, as well as similarities in specific risk factors, a focus on these commonalities may negate evidence that female offenders present with distinct offending histories compared to men which result in varying levels of criminogenic need. Research must continue to tease out nuances in gender differences in offending, ensuring there is empirical grounding for further practice regarding gender specific risk factors and a more solid understanding of female crime.

**CHAPTER THREE: GENDER DIFFERENCES IN RISK FACTORS AND
INSTITUTIONAL MISCONDUCT FOR SUBTYPES OF VIOLENCE**

While it has long been noted that gender differences in crime and violence exist (Chesney-Lind, 1989; Herjanic, Henn, & Vanderpearl, 1977), a consensus regarding the origin and aetiology of these differences has yet to be reached. Regardless of opinions concerning the impact of gender differences, it is evident from research reviewed in chapter one and two that females who commit crime present with variations in historical factors, offending rates and type of crime (Collins, 2010; Gover, Perez, & Jennings, 2008; Rossegger et al., 2009; van der Knaap et al., 2012; Vitale et al., 2002). Furthermore, research suggests that these gender differences potentially impact upon the effectiveness of risk assessment tools, including the assessment of criminogenic risk and need to inform treatment plans. Chapter two also indicated that, in particular, females who are violent may be a distinct group compared to violent males and non-violent females and, as such, an explanation for these differences is warranted. According to reviewed research thus far, it appears that females who commit violence are likely to present with complex treatment needs, especially in the areas of childhood abuse/maltreatment, mental health and personality disorders. In addition, research has demonstrated that the function and motivation of female violence may be different to that of males. Thus, a fuller exploration of these disparities is important to develop an understanding of risk factors connected to female violence, from both a legal and rehabilitation stand point, in order to be able to better assess risk and treatment needs.

Reactive and Instrumental Aggression

As noted in chapter one, the instrumental and reactive violence classification system can be considered a helpful way to appreciate underlying motivations for violence (Fontaine, 2007). The abundance of research on this dichotomy has demonstrated clear empirical support that distinguishes reactive aggressors from those that use instrumental violence (Fontaine, 2007). Notably, there has been a lack of research that focuses on the application of this classification system in female inpatients. Understanding the type of violence, including motivation and clinical correlates has important implications for the management and treatment of violence, especially within an inpatient setting (Meloy, 2006; Vitacco et al., 2009).

Reactive aggression (also known as impulsive aggression) is that which is in response to anger, arising from a perceived provocation or defending oneself from a threat (Cornell et al., 1996). Stemming from the frustration-aggression hypothesis (Berkowitz, 1989), the goal of the aggressor in this situation is to achieve retribution over an individual in an interpersonal conflict. This is in contrast to instrumental violence (also known as proactive or premeditated aggression), which has its roots in social learning theory (Bandura, 1977). Here, violence is utilised to achieve a specific goal, such as money, power or sexual gratification, beyond that of merely harming the victim (Cornell et al., 1996). These aggressors are motivated by their goals, not necessarily their emotions; as such arousal (e.g., anger) is not a motivating factor for the act (Cornell et al., 1996). Despite the dichotomy, it is noted that those who utilise instrumental aggression are also likely to use reactive aggression when circumstances require it (Hodges & Heilbrun, 2009; Pulkkinen, 1996). Furthermore, the two subtypes of aggression are found to be highly correlated and this overlap can, at times, confuse understanding of these types (Card & Little, 2006).

There is evidence that violence is strongly influenced by personality traits, such as those associated with antisocial personality and psychopathy (Andrews & Bonta, 2010). Additionally, the specific type of aggression in which an individual engages has also been shown to be influenced by personality traits (Bettencourt, Talley, Benjamin, & Valentine, 2006; Thornton, Graham-Kevan, & Archer, 2010), and this can be an especially important consideration within inpatient populations (Daffern & Howells, 2007). The reactive/instrumental classification has empirical support within inpatient populations, and has been successfully scored with this group (Kockler, Stanford, Nelson, Meloy, & Sanford, 2006). Within inpatient groups, research has demonstrated that active symptoms of mental illness are associated with reactive aggression, as is irritability and anger (McDermott et al., 2008; Vitacco et al., 2009), while the affective and interpersonal traits of psychopathy are related to the commission of instrumental violence (Laurell, Belfrage, & Hellström, 2010; Vitacco et al., 2009). In a sample of inpatients with Schizophrenia, compared to reactive aggressors, those who exhibited instrumental aggression were characterised by insecure attachment, severe personality pathology and reduced mentalisation abilities (Bo, Abu-Akel, Bertelsen, Kongerslev, & Haahr, 2013). Notably,

while no effect of gender was found in this sample, antisocial personality disorder significantly predicted the presence of instrumental violence (Bo, Forth, et al., 2013).

While the instrumental/reactive dichotomy has received some attention in inpatient groups, the majority of research concerning this classification in females has focused on gender differences in youth, prisoners or non-clinical settings. Notably, the presence of either type of aggression is connected to a number of psychosocial difficulties. For instance, although no differences in rates of reactive or instrumental aggression were found between male and female prisoners, both instrumental and reactive aggression was related to negative perceptions of parenting style (Goodwin, 2008) and impulsive aggression was related to Axis I disorders such as anxiety, post-traumatic stress disorder and alcohol use (Swogger, Walsh, Houston, Cashman-Brown, & Conner, 2010). Research has shown that psychopathy (as measured by the PCL-R) was associated with both reactive relational aggression and instrumental physical aggression in a sample of female German prisoners (Lehmann & Ittel, 2012), instrumental aggression within male prisoners (Declercq, Willemsen, Audenaert, & Verhaeghe, 2012; Kolla et al., 2013; Swogger et al., 2010) and instrumental aggression in a laboratory setting (as assessed by a self-report measure of psychopathy; Bobadilla, Wampler, & Taylor, 2012).

Similar to research on adult prisoners, studies utilising adolescent samples have found that the commission of instrumental violence is related to psychopathy and callous-unemotional traits in adolescents (Raine et al., 2006; Stickle, Marini, & Thomas, 2012). Reactive aggression in youth has been linked to a history of physical abuse (Dodge, Lochman, Harnish, Bates, & Pettit, 1997; Ford, Fraleigh, & Connor, 2010), increased social problems, difficulties with attention and impulsivity (Dodge et al., 1997), and anxiety and schizotypal traits (Raine et al., 2006). Conversely, youth who had utilised instrumental aggression in childhood were shown to have a history of poor school compliance, conduct disorder, oppositional defiant disorder, fighting, delinquency (Pulkkinen, 1996; Raine et al., 2006; Vitaro, Gendreau, Tremblay, & Oligny, 1998), and drug use (Connor, Steingard, Anderson, & Melloni, 2003). Difficulties in the family home have also been noted in the developmental history of adolescent instrumental aggressors, such as experiencing parental substance use or violence (Connor et al., 2003), being raised by a single parent, low socioeconomic status

(Raine et al., 2006) and negative parental affect (Yeh, Chen, Raine, Baker, & Jacobson, 2011). Furthermore, the presence of instrumental aggression in childhood has longer term implications such as serious violent offending in late adolescence (Raine et al., 2006) and alcohol difficulties in adulthood (Pulkkinen, 1996).

While research has shown that impulsivity may account for the largest portion of variance in reactive aggression (Connor et al., 2003), this same relationship was not evident in reactively aggressive females, suggesting gender differences do exist between the subtypes of violence. In females who were reactively violent, the presence of an early age of trauma and low verbal IQ explained the largest portion of the variance rather than the presence of impulsivity and ADHD (Connor et al., 2003). Females who exhibited instrumental aggression in childhood demonstrated different outcomes compared to males, as they were more likely to have internalizing problems such as anxiety and neuroticism in adulthood (Connor et al., 2003). Notably in Pulkkinen's study (1996), reactively aggressive females demonstrated fewer problems with internalising disorders in adulthood, as well as lower rates of alcohol use compared to their instrumentally violent counterparts. A study by Stickle et al. (2012) also indicated gender differences in instrumental/reactive aggression, with adolescent female offenders who demonstrated both types of aggression, exhibiting the highest level of callous-unemotional traits compared to any other group of adolescent males or females in the same study. This was noted to occur in a context of these females demonstrating a range of emotional distress and dysregulation problems, leading researchers to conclude that these females presented a more extreme departure from gender norms than what was normally seen with male adolescent offenders (Stickle et al., 2012).

Taken together, results indicate that the type of violence can be indicative of historical difficulties within the family, as well as mental health concerns and offending difficulties in later adulthood, and this may be especially relevant for instrumental aggressors. While the consideration of the type of violence is important to developing treatment and risk management strategies, so too is an evaluation of the individual's ongoing behavioural difficulties so they can be safely managed in secure settings.

Institutional Misconduct

Institutional misconduct can represent a valid and reliable proxy in understanding an individual's behaviour outside of the secure setting (Gendreau, Goggin, & Law, 1997). Institutional misconduct has been shown to be predictive of violent reoffending after release (Brown, Amand, & Zamble, 2009). Unfortunately, the majority of the research in this area has been conducted on male prisoners and inpatients, with only a handful of studies examining female prisoners and inpatients.

According to the Ministry of Justice (2009), female prisoners in the UK received more adjudications for misconducts than male prisoners, a pattern which has also been noted in American prison samples (Gover et al., 2008). An investigation of over 500 male and female inmates incarcerated in Texas indicated that females were cited more frequently than males for rule violations, but their infractions tended to be less serious in nature (McClellan, 1994). A study examining almost 5,000 male and female prisoners incarcerated in America concluded that misconduct patterns were fairly similar between genders (Craddock, 1996). Contrary to these results, however, Gover and colleagues (2008) noted distinctive differences between males and females in factors that contributed to institutional misconducts. Prior incarceration had an opposite effect on males and females, increasing the chance of institutional misconduct in males by 255% and reducing it by 51% in females (Gover et al., 2008). Institutional misconduct in this study was also influenced by increased security level in both genders, and sentence length was a stronger influencing factor for male rates of institutional misconduct compared to females. In contrast, increased institutional infractions in females were influenced by younger age, shorter sentence length and, unexpectedly, positive staff perceptions (Gover et al., 2008). In a gender comparison of the effect on mental health on misconduct in prison, the relationship between mental health problems and institutional misconduct was significantly more pronounced in females compared to males and, again, females had more infractions than their male counterparts (McCorkle, 1995).

Within inpatient mental health populations, rates of institutional violence have been reported to be more similar between genders, as have factors for violence and suicidal behaviour in hospital (de Vogel & de Ruiter, 2005; Hartvig, Roaldset, Moger, Østberg, & Bjørkly, 2011; Krakowski & Czobor,

2004). Although there is some variation between reported rates of violence while hospitalised, similarities between genders is striking; a Danish study noted that 30% of female inpatients and 29% of male inpatients had a physically violent incident during their hospitalisation (de Vogel & de Ruiter, 2005), a US study reported rates of 73.89% and 70.21% for males and females respectively (Krakowski & Czobor, 2004) and a Canadian study noted that 18.5% of females and 20.4% of males were physically violent to staff or patients (Nicholls, Brink, Greaves, Lussier, & Verdun-Jones, 2009). This indicates that regardless of gender, there are safety and management concerns regarding the risk of physical aggression from inpatients.

In a study designed to predict types of inpatient violence, factors between genders were similar but with varying magnitudes in odds ratios (Hartvig et al., 2011). Lack of insight and previous/current mental illness played a larger role in predicting institutional violence in males, while the presence of history of violence, suspiciousness, lack of realistic planning and exposure to stress had more weight in predicting female institutional violence (Hartvig et al., 2011). In a Canadian study of forensic inpatients, females were found to have rates of violent institutional misconduct similar to that of males, but with less severe injury (Nicholls et al., 2009). Differences were also noted regarding the context of the violence, with men being more likely to display aggressive behaviour during social situations with other patients (e.g., meal times), while women were more likely to be aggressive during interactions with staff (e.g., escorted to room) or occurring around instances of self-harm. This suggests an increased risk to frontline staff when working with female inpatients compared to males (Nicholls et al., 2009). Given some of the differences noted in studies of institutional misconduct, it is expected that this area warrants further attention to clarify the presence of similarities or differences within inpatients.

Gender Differences in Risk Factors

Thus far, two important risk outcomes have been reviewed, the type of violence an individual may engage in, and institutional misconduct. Both are important areas to consider when assessing and identifying treatment and risk areas. Similarly to reoffending, potential gender differences may also

exist for these outcomes. As such, the impact of gender responsive risk factors upon violence subtype and institutional infractions is also important to examine. Chapter two indicated that while a relative consistency has been reached regarding the role of personality disorders in understanding female offending, a consensus has yet to be found concerning the function of factors such as historical abuse and mental health difficulties in treating and managing female offenders. As such, a brief review of these issues and how they may relate to understanding risk in female offenders is presented.

Childhood Maltreatment and Abuse

As noted in chapter one, rates of historical child abuse and maltreatment in female offenders is almost double that seen in male prisoners in the UK (53% versus 27%, Williams et al. 2012). These numbers are of a particular concern when research suggests that experiencing maltreatment/abuse can increase the risk of engaging in harmful and maladaptive behaviours (Hahm, Lee, Ozonoff, & Wert, 2010) including violent offending (Pollock, Mullings, & Crouch, 2006; Seigel & Williams, 2003). Furthermore, data from the National Longitudinal Study of Adolescent Health in America (N = 7,576) suggests an additive effect of abuse for females (Harm et al., 2010). For instance, females who had experienced sexual abuse plus one other form of abuse in childhood increased the likelihood of engaging in criminal delinquency (guns, drugs and fighting, odds ratios ranged from 1.8 – 2.9), as well as suicidal behaviours (odds ratios ranged from 2.1 to 2.7; Hahm et al., 2010). The risk of owning a gun or engaging in fighting was tripled in women if they had experienced three forms of maltreatment (e.g., sexual, physical and emotional abuse) during childhood.

However, even a single instance of childhood abuse has been illustrated to have a serious long-term impact on violence potential, with gender differences noted regarding the extent of subsequent difficulties (Widom et al., 2006). A community sample drawn from 10 Ontario high schools demonstrated that childhood maltreatment had a negative impact on both male and female adolescents (Wolfe, Scott, Wekerle, & Pittman, 2001). Female adolescents who had experienced childhood maltreatment were seven times more likely to carry a weapon or have difficulties with anger and 4.5 times more likely to be involved in violent offending (Wolfe et al., 2001) compared to a

non-abused comparison group. Odds ratios for these same behaviours in the males in this study were smaller and non-significant (violent offending OR = 1.8, carried a weapon OR = 1.4) with maltreated males instead demonstrating a significant risk of using physical abuse within their dating relationships (OR = 3.4). In addition, abused females were more likely to exhibit symptoms of conduct disorder, and exhibit these symptoms at an earlier age, compared to non-abused counterparts (Green, Russo, Navratil, & Loeber, 1999). Similarly, females offenders who experienced abuse and/or neglect in childhood were 73% more likely to engage in a variety of violent and non-violent crime over their lifespan, compared to a female non-abused offending control group (Widom & Maxfield, 2001). Perhaps most importantly, while females with a history of abuse had significantly higher rates of violent offending in adolescent and adulthood compared to their non-abuse control group, this same significant difference was not found for the male portion of the sample (Widom & Maxfield 2001). These results emphasise the differential impact of childhood abuse upon the commission of crime and encourage a further exploration into the origins of these gender variations.

Mental Health Needs

It was noted above that history of maltreatment appears to differentially impact upon male and female offending behaviours. Similarly, while mental health needs likely characterise many offenders, regardless of gender, it is argued that there is a unique gendered impact of this factor in female offenders (Cloyes, Wong, Latimer, & Abarca, 2010). In the United Kingdom the proportion of females in secure psychiatric services (12% of inpatient population) outweighs that of female prison population (6% of prison population; Rutherford & Duggen, 2007). Furthermore, a higher proportion of female inpatients in the UK in 2005 had a designation of psychopathic disorder⁴ compared to males (21% versus 12%; Rutherford & Duggen, 2007). This suggests a higher proportion of females detained within secure hospitals in the UK were diagnosed with a personality disorder, rather than a mental illness *per se*. Studies have shown that borderline personality disorder (BPD) is the most

⁴ Within the United Kingdom, psychopathic disorder was a classification of mental disorder under the Mental Health Act of 1983, distinct from a classification of mental illness (e.g., that of schizophrenia, or bipolar disorder). Psychopathic disorder under this system was defined as “a persistent disorder or disability of mind which results in abnormally aggressive or seriously irresponsible conduct on the part of the person concerned” (source http://www.mentalhealthlaw.co.uk/Mental_disorder). This definition was removed from the Mental Health Act (1983) under the 2007 amendments.

common diagnosis in this population, followed by a diagnosis of schizophrenia/schizoaffective disorder (Long, Dolley, Barron, & Hollin, 2012; Long, Dolley, & Hollin, 2011; Trull, Stepp, & Durrett, 2003), and these female inpatients are likely to have a history of violent offending (Long, Dolley, Barron, et al., 2012; Long et al., 2011) indicating treatment of this population is important for public safety.

It has been argued that mental health difficulties have a greater impact on the risk for violence in women, than it does in men (Brennan, Mednick, & Hodgins, 2000; Hodgins, 1992). For example, research has shown that a diagnosis of a major mental illness, such as schizophrenia, is more strongly associated with female homicide offenders than with male homicide offenders (Bennett, Ogloff, Mullen, & Thomas, 2012; Brennan et al., 2000; Flynn, Abel, While, Mehta, & Shaw, 2011; Putkonen et al., 2010). Furthermore, the presence of a mental health problem also appears to have a greater impact on the successful rehabilitation of female offenders once released into the community.

In a five year prospective study utilising a large sample of incarcerated offenders (N=2,112), prisoners with serious mental health difficulties were followed to determine the role of mental health on rates of reoffending (Cloyes et al., 2010). While women remained in the community longer than men in this study, within-gender examinations indicated that women with a serious mental illness were returned on average 169 days sooner compared to women without a serious mental illness (Cloyes et al., 2010). Notably, this same discrepancy was not found within the male portion of the sample. Additionally, females in this study also exhibited the most severe mental health scores compared to males and had shorter median stays in the community compared to severely mentally ill males (female 238 days versus male 275 days; Cloyes et al., 2010). Similar results were also found utilising a longitudinal sample of children (N = 1,420) followed into young adulthood, where again mental health problems appeared to exert more influence upon female offending (Copeland, Miller-Johnson, Keeler, Angold, & Costello, 2007). After controlling for a number of external factors, 20.6% of female crime and 15.3% of male crime was predicted by childhood mental health problems (Copeland et al., 2007). Furthermore, while presence of an emotional disorder (anxiety or depression)

increased the risk of crime for females, this same relationship did not hold true for mental illness in males, suggesting gender differences in the impact of mental illness on offending.

Personality Disorders

As has been previously noted, personality disorders have been linked to offending and the commission of violence (e.g., Putkonen et al., 2003) and research suggests that this relationship is most robust for antisocial and/or borderline personality disorders (Weizmann-Henelius et al., 2004a). In addition to the association with offending, ASPD and BPD have been shown to be predictive of the commission of institutional violence (Warren, Hurt, et al., 2002) as well as high rates of both instrumental and reactive violence (Gardner, Archer, & Jackson, 2012; Ostrov & Houston, 2008). Antisocial and borderline personalities have demonstrated similarities, both emerging from childhood histories of conduct disorder and leading to difficulties with substance misuse and offending (Freestone, Howard, Coid, & Ullrich, 2013). Within prison populations, a diagnosis of either ASPD or BPD is associated with an increased level of offending risk, self-harm behaviour and psychological distress (Black et al., 2007; Black et al., 2010).

As was noted with the potentially gendered impact of mental health problems, differences have also been demonstrated in research regarding gender, personality disorders and links with violence. The presence of a personality disorder, and especially ASPD, increases the risk for violent offending in females and, notably, this relationship is stronger for women than men (Yang & Coid, 2007; Yourstone, Lindholm, Grann, & Fazel, 2009; Yu et al., 2012). A large scale survey (N = 3,937) conducted by the Office of National Statistics in the United Kingdom found that violent men were more likely to exhibit hazardous drinking, alcohol dependence and ASPD compared to violent women (Yang & Coid, 2007). This was contrary to what was seen in violent women, who scored higher for psychosis, affective/anxiety difficulties and any personality disorder. Notably though, violent women in this sample were more likely to have ASPD (OR = 5.26 versus 3.24, $p = 0.003$) compared to men, and more likely to have any personality disorder (OR = 1.0 versus 0.69, $p = 0.04$).

Psychopathy

Examination of psychopathy research indicates that there are potential gender differences in personality disorders and violence (in particular psychopathy as assessed by the Psychopathy Checklist-Revised; Hare, 2003; see chapter four for a more detailed description regarding the definition and development of the current concept of psychopathy). It has been suggested that the expression and nature of psychopathy may be inherently different in women and, as such, a more gendered interpretation of the concept should be considered (Falkenbach, 2008; Forouzan & Cooke, 2005; Nicholls, Ogloff, et al., 2005; Vitale & Newman, 2001). Furthermore, this concern has a wider impact on the predictive validity of psychopathy, including how best to measure it in females (Salekin et al., 1997; Weizmann-Henelius, Putkonen, et al., 2010).

Research has indicated that measurement difficulties exist when attempting to assess psychopathy in females. Differential item endorsement has been exhibited in the PCL- R (Grann, 2000; Strand & Belfrage, 2005) and in self-report psychopathy assessments (Gummelt, Anestis, & Carbonell, 2012). Women have more often received full scores on items tapping into promiscuous sexual behaviour and irresponsibility (Grann, 2000), impulsivity (Strand & Belfrage, 2005) and items reflecting passive manipulation (in the Levenson Self-Report Psychopathy Scale, Gummelt et al., 2012). This is in contrast to males who more often endorse items regarding criminality, callousness, shallow affect and behavioural impulsivity (Grann, 2000; Gummelt et al., 2012; Strand & Belfrage, 2005). These differences suggest inherent difficulties in assessing psychopathy in women, reflecting differing psychopathological and behavioural correlates between genders.

The expression of psychopathy in females and how these differences fit alongside the current conceptualisation of personality disorders has also been explored by research. It has been suggested that certain personality disorders (e.g., ASPD for males and histrionic or borderline personality for females) may represent gender-specific variants of psychopathy (Cale & Lilienfeld, 2002; Hamburger, Lilienfeld, & Hogben, 1996), or that a combination of personality disorders may be related to psychopathy in females (Warren et al., 2003; Weizmann-Henelius et al., 2004b). Furthermore, it has been suggested that many of the apparent gender differences in the expression of psychopathy may be

akin to the division between primary (characterised by an innate lack of fear and anxiety) and secondary psychopathy (characterised by negative emotionality and anxiety; Blackburn, Logan, Donnelly, & Renwick, 2008; Skeem, Poythress, Edens, Lilienfeld, & Cale, 2003; Sprague, Javdani, Sadeh, Newman, & Verona, 2012).

Much of the debate regarding gender differences in psychopathy has come from research which demonstrates variations between genders for behaviours and personality factors related to psychopathy. Borderline personality traits have shown differential associations with psychopathy, with both factors of the PCL-R (interpersonal-affective and antisocial-behavioural) being predictive of borderline traits in females, compared to only Factor 2 (antisocial-behavioural) showing a predictive link in males (Sprague et al., 2012). Importantly, this relationship demonstrated itself in both the female undergraduate and offending samples of this study (Sprague et al., 2012). Similarly, using a self-report measure of psychopathy (the Psychopathic Personality Inventory), male college students showed significant associations between psychopathy and ASPD, whereas for women psychopathy was more strongly related to histrionic personality (Hamburger et al., 1996). Results suggest that there are gender differences in the manifestation of personality disorders and psychopathy that may indicate the need to utilise different criteria when assessing psychopathy in women (Verona & Vitale, 2006).

Behaviours such as self-harming and internalising disorders such as anxiety and negative affect have also demonstrated unexpected links⁵ with psychopathy in females (Blonigen et al., 2012; Nicholls, Ogloff, et al., 2005; Vitale et al., 2002). As noted above, BPD is highly prevalent in female offending groups and is often characterised by the presence of self-harm or suicidal behaviour (APA, 2000). Within female prisoners, psychopathy (as measured by the PCL-R) has demonstrated links to suicide attempts (Verona et al., 2005), suicidal ideation and self-harm behaviours (Verona et al., 2012). Similar to results seen in the study by Sprague and colleagues (2012), it was the combination of high scores on both factors of the PCL-R that demonstrated the most significant relationship to self-harming behaviours in females, while in males this relationship was only observed with Factor 2

⁵ Within the original concept of psychopathy by Cleckley (1941), it was thought that suicidality and related behaviours were incompatible with the interpersonal and affective aspects of psychopathy due to a seeming immunity to negative emotionality, stress and anxiety.

(Verona et al., 2012). In female adolescent offenders, psychopathy (as measured by the PCL:YV or a self-report psychopathy scale, Psychopathy Screening Device) was significantly related to internalising pathology such as anxiety and suicidal behaviour (Sevecke, Lehmkuhl, & Krischer, 2009), mental health problems, including psychiatric hospitalisation (Cook et al., 2010) and emotional symptoms (Pechorro et al., 2013). These same relationships were not evident in the adolescent males of these samples, with psychopathy showing links to externalising pathology such as aggressive and delinquent behaviour (Cook et al., 2010; Sevecke et al., 2009). It is evident that a number of gender differences exist in psychopathy, including correlates with psychopathology and personality disorders. As such, the assessment and expression of psychopathy as a risk factor for female offending is unclear.

Protective Factors

In addition to identifying risk factors for reactive and instrumental violence, research has also examined the role of strengths or protective factors in predicting offending. Protective factors can buffer an individual from the presence of a risk factor for future offending and encourage desistance from offending, even in high risk forensic psychiatric patients (Bouman, De Ruiter, & Schene, 2010; de Ruiter & Nicholls, 2011). To date, much of the research on strengths and protective factors has been conducted with juvenile offenders. While some research has explored the effect of specific protective factors on female inmates, there is a lack of research regarding the impact of protective factors with inpatient females. In chapter two, a review of studies by Salisbury and colleagues (Salisbury & Van Voorhis, 2009; Salisbury et al., 2009) demonstrated that protective factors, such as educational strengths, self-efficacy and positive family support, had a small but significant impact on prison admission, as well as mediating the negative impact of risk factors such as employment difficulties and relationship dysfunction on reoffending. The inclusion of protective factors encourages a more motivational approach to treatment which may encourage active engagement in a rehabilitation program. This is especially important given the potential difficulty engaging psychiatric populations in treatment programmes (Long et al., 2011; Long, Dolley, & Hollin, 2012).

In a sample of adult male offenders, the existence of protective factors were found to reduce future violent reoffending (Ullrich & Coid, 2011). Five factors were found to be protective against violent reoffending after release: social support, emotional support, spare time spent with family/friends, religious activities and closeness to others. Notably, no “pragmatic” variables such as accommodation or finances were related to risk (Ullrich & Coid, 2011). The quality of the social ties appeared to be key, as they were only protective when criminal friends/associates were excluded. This demonstrates how social ties, such as work, family and friends, is a multifaceted factor which is thought to interplay with a criminal lifestyle (Bouman et al., 2010). Club participation was the most salient protective factor for violent re-offending, property offences and general delinquent behaviour, even in the presence of criminal friends (Bouman et al., 2010). No additional effects were found for any social ties, such as intimate relationship or educational contacts, except for work contacts (Bouman et al., 2010). Within a community sample, PCL-R scores have been shown to be negatively associated with protective factors in a high-psychopathic group, and non-criminal individuals have more protective factors than criminal counterparts (Dematteo, Heilbrun, & Marczyk, 2005).

In adolescent offenders, research has shown that consideration of strengths such as positive peer relations, school achievement and positive attitude towards authority, can have a significant impact on the likelihood of general recidivism, as well as improving overall adjustment (Hoge, Andrews, & Leschied, 1996), and approaches focusing on strengths are more effective in promoting change and treatment engagement (Ward & Maruna, 2007). Consideration of strengths can allow for a more positive and holistic picture of an individual, rather than focusing on risk alone (Andrews & Bonta, 2010), which is supportive of recommendations for a positive, holistic approach to female offenders (Corston, 2007).

Protective Factors in Risk Assessment

The consideration of both strength and risk factors in an assessment for violence can be considered a more balanced approach to risk assessment, which has been largely neglected by traditional approaches (de Ruiter & Nicholls, 2011). Attending to protective factors may encourage a more positive approach to offender rehabilitation, encouraging motivation and therapeutic alliance (de

Ruiter & Nicholls, 2011). Despite this optimism, it is still unclear how heavily to weigh these strengths against risk factors, or how they may change or alter over time (de Ruiter & Nicholls, 2011). To date, there are few adult risk assessment tools that attempt to incorporate the assessment of both strength and risk factors. One emerging assessment tool that assesses both dynamic strength and risk factors is the Short-Term Assessment of Risk and Treatability (Webster, Martin, Brink, Nicholls, & Middleton, 2004) designed to be used with inpatient and community mental health groups, which will be reviewed more thoroughly below.

The Present Study

Given the continuing debate within the literature regarding female violence, it remains an area of important consideration, especially for treatment and management purposes in an inpatient setting. There is currently a dearth of research that explores risk factors for instrumental and reactive violence in aggressive female inpatients, and no studies to date have examined the role that protective factors play in this relationship. This study presents a preliminary examination of inpatients to:

1. Examine gender differences in historical factors in inpatients.
2. Examine gender differences in risk and protective factors related to instrumental and reactive violence in inpatients.
3. Explore gender differences regarding the impact of prior instrumental or reactive violence on current strengths and risks (as measured by the START).
4. Explore gender differences regarding the impact of prior instrumental or reactive violence on current institutional misconduct.
5. Explore the role psychopathic traits have in this relationship between genders and subtypes of violence.

Method

Participants

Participants were recruited from an independent sector, locked-rehabilitation mental health hospital in the United Kingdom. All female inpatients within this hospital group, during the time of data collection (May – July 2012) were sampled, resulting in a potential sample of 99 females. Only those with a history of violence were included (see Appendix I for full definition), resulting in a total sample of $N = 75$. There was no reason to suspect that patient profiles should be dissimilar between hospitals, therefore, male hospitals were chosen by their geographical location for ease of access. Collection of male inpatient data ceased when the same number of males as females were collected (males $N = 75$). Again, only males with a history of violence were included. Archival information for the total sample of 150 males and females had to be of sufficient depth to allow for classification of subtype of violence, as well as coding of historical risk and protective factors. Not all participants (females $n = 6$; males $n = 8$) had files of sufficient detail to allow for classification and adequate data collection and were therefore excluded, resulting in a total sample of $N = 136$ (females = 69, males = 67). A power analysis was conducted prior to data collection, using G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) indicated that for a regression equation with eight predictors, to achieve a moderate effect size at an 80% chance, with a probability level of .05, a sample size of 159 would be required. To achieve a strong effect size at the same parameters, a sample of 52 would suffice, as such it was deemed the current sample size was adequate.

It should also be noted that within this final sample, at points there was missing data, so available numbers for each variable differ and are presented where applicable. Due to a lack of information in the files, data regarding employment history, relationship dysfunction, school information, antisocial peers and supervision failures contained large portions of missing data (missing data exceeded 80% for these variables), so these variables were not included in analyses. Additionally, variables regarding impulsivity (96%) and unstructured leisure time (95.1%) were positively coded for almost the entire sample; as such it was deemed that analyses on it would be unproductive and they were excluded.

Procedure

This was a retrospective study utilising archival information. History of violence was determined by reviewing admission assessments. History of violence was defined as at least any one act which was of sufficient severity to be potentially charged as a criminal offence, regardless of whether a conviction or charge actually resulted. Admission assessments are comprehensive case summaries consisting of all information available on an individual in their clinical file, including psychiatric and psychological reports, risk assessments and nursing assessments, as well as daily clinical notes and observations. File data was gathered by the primary researcher utilising a pre-designed coding sheet and coding guide (Appendix I) to ensure consistent data collection. The data collection sheet of risk and protective factors was developed with items gathered from a comprehensive literature review, to include both gender neutral and gender specific risk factors. In addition, START scores were gathered (the most recent on file at the time of data collection) to provide an update-to-date measure of strength and risk factors. Institutional misconducts were also counted using the hospital incident scales.

Criterion Measures

To assess violent subtypes, each identified inpatient was classified as either an instrumental or reactive aggressor utilising the coding scheme developed by (Cornell et al., 1996). Individuals were coded as instrumental aggressors if their index offense or any other offense met the instrumental violence criteria. As has already been noted, it is not uncommon for instrumental aggressors to also have a history of reactive violence (Pulkkinen, 1996) and, as such, an individual was identified as instrumentally violent (IV) if they had at least one clearly instrumental violent act, regardless of the presence of other reactive violence. Secondary offence characteristics were also coded to help identify important characteristics of the index offence (Cornell et al., 1996). These offence characteristics included goal-directedness, planning, arousal, severity of violence, relationship to victim, intoxication and psychosis (Appendix J). All other inpatients were classified as reactively violent (RV). This classification has excellent inter-rater reliability ($kappas = .81 - .85$) when identifying instrumental

aggression (Cornell et al., 1996; Vitacco, Neumann, Caldwell, Leistico, & Van Rybroek, 2006; Woodworth & Porter, 2002). To determine reliability of the violent subtype coding for this project 20% of each gender (20 females, 14 males) were chosen at random and coded by a second individual utilising the Cornell et al. (1996) coding protocol. Agreement can be considered substantial to outstanding (as per Landis & Koch, 1977) for females, males and the entire sample (Kappas = .78 - .85, $p \leq .001$).

Questionnaire

In an examination of instrumental and reactive violence, the inclusion of a psychopathy measure is important to ensure the comparability of results to other studies in the area, as research has demonstrated strong links between instrumental violence and psychopathy. As such, the *Levenson Self-Report Psychopathy Scale* (Levenson, Kiehl, & Fitzpatrick, 1995) was distributed to participants who were identified in the file review portion of the study (Appendix K) in order to identify traits related to primary and secondary psychopathy within this population. The 26 item questionnaire required participants to agree or disagree with statements on a scale of 1 – 4. This questionnaire has previously demonstrated good validity and reliability on both male and female samples, and scores of primary and secondary psychopathy have demonstrated correlations to instrumental and reactive aggression, respectively (Falkenbach, Poythress, & Creevy, 2008). Please see chapter four for a full review of this measure.

Outcome Measures

In addition to the historical risk and protective factors gathered from files, two outcome measures were also utilised: START total scores as a measure for current strength and risk scores and hospital incident scales as a measure of institutional misconduct.

START scores. The Short-Term Assessment of Risk and Treatability (START; Webster et al., 2004) is a guided risk assessment tool that utilises the structured professional judgement approach with items drawn from empirical literature. The START encourages the consideration of each of these

items as both a strength and a vulnerability to assess short-term dynamic risk in a variety of clinical domains (e.g., risk to others, substance misuse, self-harm, self-neglect). This approach views strengths as qualitatively different from risks, and as such moves away from a dichotomous approach that strength and risk lay on the same spectrum. With this method, an individual can be rated high for a strength and a risk on the same item and presence of risk does not mean absence of strength (Braithwaite, Charette, Crocker, & Reyes, 2010). Made up of 20 dynamic items (Appendix L), each item is scored on a 3 point (0, 1, 2) strength and vulnerability (risk) scale. The tool has been shown to have good inter-rater reliability ($ICC = 0.87$), and good internal consistency ($0.80 - 0.97$) in a forensic psychiatric sample (Nicholls, Brink, Desmarais, Webster, & Martin, 2006). The risk and strength scales in the START have been well validated in a range of inpatient populations in North American and Europe (Chu, Thomas, Ogloff, & Daffern, 2011; Nonstad et al., 2010), and demonstrated predictive validity for challenging behaviours and non-violent behaviours such as unauthorised leave and substance abuse (Braithwaite et al., 2010; Nicholls et al., 2006). For this sample, STARTs were scored every eight weeks by the multidisciplinary team made up of psychologists, nursing staff, psychiatrists and occupational therapists. This approach is encouraged by the START scoring manual, ensuring an active and dynamic consideration of current difficulties and strengths relevant to each patient by the clinical team. Scoring the START by an MDT has been demonstrated a reliable and effective way of predicting future inpatient violence (Nonstad et al., 2010).

Hospital incident scales. Hospital policy dictated that all behavioural infractions and transgressions be recorded by nursing staff using hospital incident scales (Appendix M). The incident scales were made up of a variety of observational assessment scales, compiled by the hospital (e.g., Overt Aggression Scale, Yudofsky, Silver, Jackson, Endicott, & Williams, 1986; Brief Psychiatric Rating Scale – BPRS-E, Venture et al., 1993; Jail Screening Assessment Tool, Nicholls, Roesch, Olley, Ogloff, & Hemphill, 2005; Stalking Assessment and Management – SAM; Kropp, Hart, & Lyon, 2003) as a means to track problematic behaviour including verbal and physical aggression, sexually inappropriate behaviour, self-harm and suicidal attempts/ideation, substance use and stalking. Each of the sections scores a particular behaviour on a scale of 1 – 4, in which 4 represent the most

severe form of the behaviour. Incident scales were gathered for each inpatient, as many as were available, for up to one year if possible. Both a mean frequency of incidents and a mean level of severity was tabulated for each incident type.

Ethics

The Research and Development group of the hospital from which the data was collected approved the study to proceed. Ethical approval was then granted from the NHS Research Ethics Committee (12/WM/0234) with sponsorship support from the University of Birmingham (RG_12-156). As such, all data collection materials, confidentiality and consent protocol are in accordance with policy and procedures set out by the National Research Ethics Service (England) and Welsh Assembly Research Governance Framework and the Governance arrangements for Research Ethics Committees.

Statistical Analysis

All results were computed using SPSS 17.0. Examination of continuous variables utilising the Kolmogorov-Smirnov (K-S) test indicated that portions of the data violated parametric assumptions. Historical predictor variables yielded a significant result ($p < .05$) on the K-S test. Further exploration of values of skewness and kurtosis indicated that this portion of data was skewed (Z skewed > 1.96). Institutional misconduct outcome variables also demonstrated a violation of normal distribution, presenting with data that was both skewed and had kurtosis (Z skewed, Z kurtosis > 1.96). START scores presented with a non-significant K-S score, as did the LSPS, so parametric assumptions were supported. As such, descriptive analyses utilised chi-square to compare differences between dichotomous variables, t-test to compare means between parametric data, and Mann-Whitney U to compare differences between non-parametric continuous data.

Results

The patient group is a heterogeneous mix of individuals that have been hospitalised under criminal or civil sections (under the Mental Health Act 1983, amended in 2006) and, as such,

represent a range of individuals with varying histories of aggression. The mean age of the final sample was 37.82 years (range 19.12 – 64.91, $SD = 10.63$) and ethnic make-up was 84.9% Caucasian, 7.5% Afro-Caribbean, 3.7% South Asian and 3.7% were of mixed ethnic descent. Age and ethnicity were not significantly different between genders.

Demographic variables are presented in Table 4. Notably while there were no differences in age or ethnicity, differences did exist in diagnoses with women being more likely to be diagnosed with a mood disorder and men more likely diagnosed with a psychotic disorder, especially Schizophrenia. Differences were also evident in the type of personality disorder, with men more likely to be diagnosed with ASPD whereas women more likely to be diagnosed with BPD. Men were also more likely to be diagnosed with a substance misuse disorder. No differences were noted for type of index offence. (Notably, although all occurrences of sexual assault were committed by men, this difference was not significant, which was probably due to small cell sizes.) Additionally, there were no significant associations with either gender and weapon use [males 58.2%, females 52.9%; $\chi^2(1) = 0.38, p > .05$], knife use [males 42.4%, females, 41.2%; $\chi^2(1) = 0.02, p > .05$], blunt object weapon [males 27.3%, females 16.2%; $\chi^2(1) = 2.43, p > .05$] and gun use [males 12.1%, 7.4%; $\chi^2(1) = 0.87, p > .05$]. Having a stranger victim approached significance, with this association being stronger in males [males 25.4%, females 13.6%; $\chi^2(1) = 2.91, p = .088$].

Half of the sample (54.41%) had more than one diagnosis (e.g., substance misuse disorder 25%, PTSD, 1.5%, eating disorder, 1.5% and OCD 2.2%,) but these were always secondary to the primary diagnoses cited above. Number of diagnoses did not differ between genders [$M = 1.8, t(134) = .975, p > .05$].

Table 4. Diagnoses and offence characteristics of sample

Item	Entire (N= 136)		Females (n = 69)		Males (n = 67)		χ^2	Cramer's V ^b	OR
	N	%	n	%	n	%			
Psychotic disorder	105	77.2%	46	66.7%	59	88.1%	8.84**	.26	0.27
Schizophrenia	91	66.9%	37	53.6%	54	78.3%	11.17***	.32	3.59
Schizo-affective	14	10.3%	9	13.0%	5	7.5%			
Mood disorder	17	12.5%	13	18.8%	4	6.0%	5.15*	.20	3.66
Depression	7	5.1%	6	10.2%	1	1.5%			
Bipolar	9	6.6%	6	10.2%	3	4.8%			
Other axis 1	41	30.1%	15	21.7%	26	38.8%	4.70*	.20	0.41
PTSD	2	1.6%	2	2.9%	0	0			
OCD	3	2.2%	2	2.9%	1	1.5%			
Sub. Abuse	34	25.0%	9	13.0%	25	37.3%	10.67***	.28	0.25
Eating disorder	2	1.6%	2	2.9%	0	0			
Axis 2 (Personality)	58	42.6%	34		24				
Borderline	34	25.0%	27	39.1%	7	10.4%	14.92***	.33	5.50
Antisocial	11	8.1%	1	1.4%	10	14.9%	8.30**	.25	0.84
Avoidant	1	0.7%	1	1.4%	0	0			
PD NOS	10	7.4%	4	5.8%	6	9.0%			
ASPD/BPD	2	1.5%	1	1.4%	1	1.5%			
Autism Spectrum	11	8.1%	5	7.4%	6	9.0			
Index offence									
Threats w/o	12	8.9%	5	7.4%	7	10.4%			
weapons	17	12.6%	9	13.2%	8	11.9%			
Threats w/ weapons	77	57.0%	39	57.4%	38	56.7%			
Common assault	13	9.6%	7	10.3%	6	9.0%			
GBH/Wounding	8	5.9%	4	5.9%	4	6.0%			
Robbery	3	2.2%	0	0	3	4.5%			
Sexual assault	5	3.7%	4	5.9%	1	1.5%			
Harassment/Stalking									

* $p < .05$, ** $p < .01$, *** $p < .001$, (two-tailed)

Bold indicates significant differences between genders

^b Measure of effect size in which .1 is small, .3 is medium and .5 is large (Cohen, 1977).

OR = Odds ratio

Question 1. Gender differences in historical factors

To examine differences in historical factors, including offending details, and psychosocial factors between genders, chi-square analyses were carried out on all dichotomous variables, first examining the differences between males and females. Significant associations and those approaching significance are included in Table 5, organised in order of significance for each gender, highest to lowest. As multiple comparisons are being conducted simultaneously, familywise error rate should be controlled for, however it has been argued that the Bonferroni correction is too restrictive at times,

potentially inflating Type II error (Field, 2005; Perneger, 1998). As this project presents exploratory analysis with no *a priori* hypotheses, significant p-values at both the .05 level, and bonferroni corrected levels [.0015 ($\alpha = .05/33$)] are presented for consideration.

Table 5. Significant associations between genders and historical factors (dichotomous variables)

	Females (n = 69)	Males (n = 67)				
Item (% of yes)	% (n)	% (n)	df	χ^2	Cramer's V ^b	OR
Females Higher						
Any abuse (adulthood)	46.3% (31)	3.2% (2)	1	31.34***	.49	25.83
Sexual abuse (adulthood)	22.1% (15)	1.6% (1)	1	12.56***	.31	17.26
Difficulties with depression/anxiety	69.5% (41)	30.5% (18)	1	17.93***	.39	5.19
Abuse by stranger	29.9% (20)	8.3% (5)	1	9.27**	.27	4.69
Hx. of suicide attempts	65.2% (43)	33.8% (22)	1	12.84***	.31	3.65
Any abuse history	74.6% (50)	45.2% (28)	1	11.70***	.30	3.57
Parental mental health difficulties	56.7% (34)	28.1% (16)	1	9.77**	.29	3.35
Sexual abuse (childhood)	42.4% (28)	20.0% (12)	1	7.29**	.24	2.95
Hx. of self-harm	66.7% (44)	44.6% (29)	1	6.56*	.22	2.48
Abuse by relative	59.7% (40)	40.0% (24)	1	4.92*	.20	2.22
Parental substance abuse	42.0% (21)	25.9% (14)	1	3.00 ^a	.17	2.07
Adult physical abuse	25.0% (17)	0	1	17.83***	.37	#
Males Higher						
Adult hx. of nonviolent offending	65.2% (43)	91.0% (61)	1	11.37***	.30	0.20
Hallucinogen use	31.9% (22)	64.2% (43)	1	14.21***	.32	0.26
Antisocial attitudes	20.8% (11)	63.0% (34)	1	19.55***	.43	0.15
Stimulant use	30.4% (21)	50.7% (34)	1	5.82*	.21	0.43
Severity of violence	29.0% (20)	49.2% (32)	1	5.78*	.21	0.42
Lack of remorse	61.8% (34)	82.3% (51)	1	6.13*	.23	0.35
Hx. of substance abuse	70.6% (48)	88.1% (59)	1	6.28*	.22	0.33
Callousness	12.5% (5)	34.5% (19)	1	5.96*	.25	0.27

Uncorrected significance * $p < .05$, ** $p < .01$, *** $p < .001$, ^a approaching significance, $p < .1$ (exact, 2-sided)

Bold denotes significant at the bonferroni correct level $p \leq .0015$

^b Measure of effect size in which .1 is small, .3 is medium and .5 is large (Cohen, 1977).

Unable to calculate odds ratio due to zero count for males

OR = Odds ratio

Examining differences in historical factors between genders (Table 5) indicated that female inpatients presented with a number of difficulties when compared to male inpatients, including experiencing more childhood maltreatment, abuse in adulthood, problems in their family of origin and mental health problems. Men exhibited more difficulties with substance misuse and increased levels of criminality, including associated antisocial attitudes and lack of empathy.

There were no significant associations ($p > .05$) for either gender regarding the presence of any childhood abuse (males 46.8%, females 57.6%), any childhood physical abuse (males 33.3%, females 28.8%), any childhood neglect/emotional abuse (males 6.7%, females, 13.6%), parental criminal history (males 14.8%, females 14.3%), witnessing family violence (males 40.7%, females 40.4%), placed in care (males 28.6%, females 29.7%), placed in special school (males 16.7%, females 18.6%), truanted from school (males 60.0%, females 50.0%), homelessness (males 17.0%, females 27.3%), adolescent history of violence (males 44.3%, females 46.2%), childhood history of violence (males, 13.1%, females 13.6%), adolescent history of nonviolent offending (males 50.0%, females 36.5%) and childhood history of nonviolent offending (males 11.7%, females 4.9%).

Question 2. Differences between violence subtype and historical factors

Differences between violence subtype and historical factors

Chi-square analyses was also utilised to examine significant associations between diagnoses and offence characteristics, as was presented in Table 4. No significant associations ($p > .05$) existed for stranger victim, (IV 22.4%, RV 17.9%), weapon use (IV 60.0%, RV 52.9%), knife use (IV 48.0%, RV 38.1%), blunt object weapon (IV 22.0%, RV 22.6%) however, gun use demonstrated an almost significant association with those instrumentally violent [IV 16.0%, RV 6.0%; $\chi^2 (1) = 3.61, p = .07, OR = 3.01$].

There were no significant associations with a diagnosis of mood disorder (IV 13.7%, RV 11.8%) or schizophrenia (IV 72.5%, RV 80.0%) but presence of a personality disorder was highly associated with instrumental violence (IV 70.6%, RV 25.9%; $\chi^2 (1) = 26.05, p < .001, OR = 6.87, Cramer's V = 0.44$]

Chi-square analyses was also utilised to examine significant associations between historical factors and subtype of violence (Table 6). Individuals classified as instrumentally violent were more likely to have experienced childhood maltreatment, a variety of mental health problems, difficulties in their family such as witnessing violence, and personality factors such as lack of empathy and antisocial attitudes.

Table 6. Significant associations between violence subtype and historical factors (dichotomous variables, N = 136)

Item (% of yes)	Instrumental	Reactive	df	χ^2	Cramer's V ^b	OR
	(n = 51)	(n = 85)				
	% (n)	% (n)				
Any child abuse history	64.6% (31)	45.0% (36)	1	4.61*	.19	2.23
Child sex abuse	44.7% (21)	24.1% (19)	1	5.79*	.21	2.55
Child physical abuse	46.8% (22)	21.5% (17)	1	8.82**	.27	3.21
Hx. of suicide attempts	60.0% (30)	43.2% (35)	1	3.49 ^a	.16	1.97
Difficulties with depression/anxiety	64.1% (25)	43.0% (34)	1	4.63*	.20	2.36
Hallucinogen use	60.8% (31)	40.0% (34)	1	5.52*	.20	2.33
Homelessness	30.4% (7)	11.4% (4)	1	3.26 ^{†a}	.24	3.39
Placed in special school	28.9% (13)	10.8% (8)	1	6.29*	.23	3.34
Truanted from school	78.6% (11)	50.0% (21)	1	3.50 ^a	.25	3.67
Witnesses violence in family home	57.9% (22)	30.2% (19)	1	7.56**	.27	3.18
Parental substance misuse	44.7% (21)	27.3% (18)	1	3.29 ^a	.18	2.26
Antisocial attitudes	60.0% (24)	31.3% (21)	1	8.44**	.28	3.29
Lack of remorse	84.1% (37)	65.8% (48)	1	4.65*	.20	2.75
Callousness	45.7% (16)	13.3% (8)	1	12.28***	.36	5.47
Severity of violence	54.0% (27)	29.8% (25)	1	7.75**	.24	2.77

Uncorrected significance * $p < .05$, ** $p < .01$, *** $p < .001$, ^a approaching significance, $p < .1$, (exact, 2-sided)

Bold denotes significant at the bonferroni correct level $p \leq .0015$, OR = odds ratio

^b Measure of effect size in which .1 is small, .3 is medium and .5 is large (Cohen, 1977).

There were no significant associations between violence subtypes and childhood neglect (IV 12.8%, RV 8.9%), any abuse in adulthood (IV 25.0%, RV 25.9%), sexual abuse in adulthood (IV 10.2%, RV 13.6%), adult physical abuse (IV 16.3%, RV 11.1%), abuse by a stranger (IV 22.4%, RV 17.9%), abuse by a relative (IV 59.2%, RV 44.9%), any abuse history (IV 68.8%, RV 55.6%), history of self-harm (IV 64.0%, RV 50.6%), history of substance abuse (IV 84.3%, RV 76.2%), stimulant use

(IV 45.1%, RV 37.6%), being placed in care as a child (IV 31.1%, RV 28.0%), parental criminal history (IV 53.3%, RV 10.6%), parental mental health difficulties (IV 50.0%, RV 38.7%), adolescent history of violence (IV 54.3%, RV 40.0%), childhood history of violence (IV 17.8%, RV 10.7%), adult history of nonviolent offending (IV 85.6%, RV 75.6%), adolescent nonviolent offending (IV 52.2%, RV 37.7%) and childhood nonviolent offending (IV 6.5%, RV 9.3%)

Differences between gender and violence subtype for historical factors

Examining the instrumental or reactive classification, 62.5% (n = 85, 43 males and 42 females) were classified as reactive and 37.5% (n = 51, 24 males and 27 females) were classified as instrumental. Chi-square analysis revealed there was no effect of gender on this relationship [$\chi^2(1) = 0.16, p > .05$]. To begin teasing out the association of both gender and violence subtype on historical factors, Table 7 presents significant differences between violence subtype divided by gender. It is evident that within the sample of female inpatients, those who were classified as instrumentally violent demonstrated increased levels of childhood abuse history, mental health problems, including suicidal behaviour and personality disorders, drug use and criminal attitudes such as lack of empathy and callousness.

Fewer differences are noted within the male sample when comparing violence subtypes, compared to that found in the female portion of the sample. Males classified as instrumentally violent demonstrated higher levels of childhood physical abuse, were more likely to be diagnosed with a personality disorder, and demonstrate antisocial and callous personality traits. There were no differences between violent subtypes within either gender for history of any abuse, childhood neglect, any adult abuse (including sexual and physical abuse in adulthood), abuse by a strange or relative, self-harm, stimulant use, homelessness, being placed in a special school, history of truanting, being placed in care, parental mental health and history of violence in adolescent/childhood and nonviolent offending in childhood ($p < .05$).

Table 7. Significant associations between violence subtype and historical factors, genders separated (dichotomous variables)

Item (% of yes)	Females (n = 69)						Males (n = 67)					
	IV (n=27)	RV (n=42)	df	χ^2	V ^b	OR	IV (n=24)	RV (n=43)	df	χ^2	V ^b	OR
	% (n)	% (n)					% (n)	% (n)				
Gun Use	15.4% (4)	2.4% (1)	1	3.97 ^{†a}	.24	7.46	16.7% (4)	9.5% (4)	1	.73 [†]	.11	1.90
Childhood sex abuse	60.0% (15)	31.7% (13)	1	5.09*	.28	3.23	27.3% (6)	15.8% (6)	1	1.15 [†]	.14	2.00
Childhood physical abuse	44.0% (11)	19.5% (8)	1	4.54*	.26	3.24	50.0% (11)	23.7% (9)	1	4.34*	.27	3.22
Any childhood abuse	72.0% (18)	48.8% (20)	1	3.42 ^a	.23	2.70	56.5% (13)	41.0% (16)	1	1.40	.15	1.9
PD diagnosis	74.1% (20)	33.3% (12)	1	10.91****	.40	5.71	66.7% (16)	18.6% (8)	1	15.48****	.48	8.75
Depression/ Anxiety	90.5% (22)	57.9% (19)	1	6.77**	.34	6.91	33.3% (6)	29.3% (12)	1	0.10	.04	1.21
Hx. of suicide attempts	81.5% (22)	53.8% (21)	1	5.37*	.29	3.77	34.8% (8)	33.3% (14)	1	0.14	.015	1.07
Any hallucinogen abuse	51.9% (14)	19.0% (8)	1	8.14**	.34	4.58	70.8% (17)	60.5% (26)	1	0.72	.10	1.59
Adult nonviolent offending	84.0% (21)	56.4% (22)	1	5.26*	.29	4.06	87.5% (21)	93.0% (40)	1	0.58	.09	0.53
Adolescent nonviolent offending	52.0% (13)	26.3% (10)	1	4.30*	.28	3.03	52.4% (11)	48.7% (19)	1	0.70	.04	1.16
Witness family violence	55.0% (11)	29.6% (8)	1	3.07 ^a	.26	2.90	61.1% (11)	31.1% (11)	1	4.64*	.29	3.57
Parental crim. hx.	15.0% (3)	13.8% (4)	1	0.14 [†]	.02	1.10	29.4% (5)	8.1% (3)	1	4.19 ^{†a}	.27	4.72
Parental substance abuse	60.0% (12)	30.0% (9)	1	4.43*	.30	3.5	27.8% (5)	25.0% (9)	1	0.05 [†]	.03	1.15
Callousness	28.6% (4)	3.8% (1)	1	5.09 ^{†*}	.36	10.00	57.1% (12)	20.6% (7)	1	7.62**	.37	5.11
Antisocial attitudes	33.3% (6)	14.3% (5)	1	2.62 [†]	.22	3.00	81.8% (18)	50.0% (16)	1	5.66*	.32	4.50
Lack of remorse	80.0% (16)	51.4% (18)	1	4.40*	.28	3.78	87.5% (21)	78.9% (30)	1	0.74 [†]	.10	1.87
Severity of violence	40.7% (11)	21.4% (9)	1	2.98	.20	2.52	69.6% (16)	38.1% (16)	1	5.89*	.30	3.71

IV = instrumentally violent, RV = reactively violent

Uncorrected significance * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$, ^a approaching significance, $p < .1$ (exact, 2-sided)**Bold** denotes significant at the bonferroni correct level $p \leq .0014$; OR = Odds ratio^b Cramer's V as measure of effect size in which .1 is small, .3 is medium and .5 is large (Cohen, 1977)[†]Fisher's exact test is reported as the expected cell frequency is < 5 .

When the more stringent Bonferroni corrected significance was applied, all significant differences for both males and females disappear except for presence of a personality disorder. Examination of odds ratios indicated that the impact of personality disorder differs between genders with instrumentally violent female being 5.7 times more likely to have a personality disorder compared to instrumentally violent males who were 8.75 times more likely to have a personality disorder.

A three-way log linear analysis was conducted to examine the effect of gender and violence subtype on each of the significant dichotomous historical factors. Due to small cell size, callous/lack of empathy, parental history of substance misuse, parental criminal history, and gun use were excluded from subsequent analysis. None of the three-way interactions (gender x violence subtype x historical factor) were significant, therefore chi-square analyses was used to interpret significant interactions between gender, violence and historical factors.

Table 8. Significant differences between gender and historical factors (continuous variables, N = 136)

Item	Females (n = 69)		Males (n = 67)		U^b	Z
	Mean (SD)	Med	Mean (SD)	Med		
Number of childhood abuses	0.94 (1.01)	1.00	0.63 (0.82)	0	1684.00 ^a	-1.70
Number of current diagnoses	1.71 (0.82)	2.00	1.85 (0.86)	2.00	2096.50	-1.01
Severity self-harm/suicidal behaviour^c	1.87 (1.54)	1.50	0.92 (1.06)	1.00	1397.50***	-3.67
Severity Substance abuse ^c	1.59 (1.57)	1.00	2.40 (1.42)	3.00	1611.50**	-3.25
Criminal versatility	3.32 (1.71)	3.00	4.57 (1.76)	4.00	1341.50***	-4.07

Uncorrected significance * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$, ^a approaching significance, $p < .1$
Bold denotes significant at the bonferroni corrected significance $p \leq .007$ ($\alpha = .05/7$)

Continuously coded historical factors were examined using a Mann-Whitney U analysis as the data violated assumptions of normal distribution. Significant findings are presented in Table 8, with females demonstrating a higher level of self-harm severity, whereas males had a higher level of

substance misuse severity, severity of violence and criminal versatility. Age at which substance use began and age when first placed in care were not significantly different between genders ($p > .05$).

Examination of differences between violence subtypes within genders (Table 9) also demonstrated that instrumentally violent females exhibited higher levels of childhood abuses, severity of self-harm, substance abuse severity and criminal versatility. Fewer differences are noted between male violence subtypes, with instrumentally violent males demonstrating increased numbers of diagnosis and criminal versatility.

Table 9. Significant differences between violence subtype and historical factors (continuous variables, $N = 136$)

Item	Females (n = 69)						Males (n = 67)					
	IV		RV		U^b	Z	IV		RV		U^b	Z
	Mean (SD)	Med	Mean (SD)	Med			Mean (SD)	Med	Mean (SD)	Med		
Num. of childhood abuses	1.32 (1.15)	1.00	.71 (0.86)	0.50	366.00*	-2.19	.91 (1.02)	1.00	.47 (0.65)	0	325.0	-1.59
Num. of current dx.	1.89 (0.80)	2.00	1.60 (0.83)	1.00	439.50 ^a	-1.71	2.21 (0.88)	2.00	1.65 (.78)	1.00	332.0**	-2.57
Sev. self-harm/suicidal beh.^c	2.48 (1.50)	3.00	1.46 (1.45)	1.00	345.0***	-2.67	0.86 (1.13)	0	0.95 (1.03)	1.00	426.50	-.537
Substance abuse severity ^c	2.11 (1.67)	2.00	1.26 (1.43)	1.00	394.00*	-2.20	2.54 (1.47)	3.00	2.33 (1.41)	2.00	466.5	-.663
Criminal versatility	4.04 (1.70)	4.00	2.86 (1.57)	2.00	317.00***	-3.14	5.65 (0.47)	6.00	3.98 (0.49)	4.00	225.0***	-3.59

* $p < .05$, ** $p < .01$, *** $p < .001$, ^a approaching significance, $p < .1$ (two-tailed)

Bold indicates a significant difference at the bonferroni corrected level $p \leq .007$ ($\alpha = .05/7$)

^b Mann-Whitney U, ^c Scale 1-5, ^d Scale 1-3

To examine the effect of both gender and violence subtype on continuous historical factors, a two-way ANOVA was conducted on the significant factors shown in Table 8. Instrumental offenders demonstrated more dysfunctional histories and greater level of offending, with significant main effects found for subtype of violence on number of childhood abuses [F (1,123) = 9.90, $p < .01$], number of diagnoses [F (1, 123) = 8.58, $p < .01$], severity of self-harm behaviour [F (1, 128) = 3.96, $p < .05$], severity of substance misuse [F (1, 132) = 4.12, $p < .05$], and criminal versatility [F (1, 130) = 24.90, $p < .001$].

Main effects of gender were less consistent, with males demonstrating higher levels of substance abuse severity [$F(1, 132) = 8.08, p < .01$], and criminal versatility [$F(1, 130) = 22.83, p < .001$] whereas females experienced more childhood abuses [$F(1, 123) = 3.88, p = .051$] and severity of self-harm behaviour [$F(1, 128) = 20.80, p < .001$].

There was no main effect for gender on diagnoses [$F(1, 123) = 1.67, p > .05$], nor was the interaction between gender and violent subtype significant for number of abuses [$F(2, 123) = 0.25, p > .05$], number of diagnoses [$F(2, 123) = 0.82, p > .05$], substance abuse severity [$F(2, 132) = 1.45, p > .05$], severity of violence [$F(2, 130) = 8.58, p < .01$] or criminal versatility [$F(2, 130) = 0.75, p > .05$].

Only one gender by violent subtype interaction was significant, and this was for severity of self-harm and suicidal behaviour [$F(2, 132) = 5.62, p < .05$]. This indicated that severity of self-harm and suicidal behaviour was the most severe in the instrumentally violent female group ($M = 2.48$), compared to their reactively violent female counterparts ($M = 1.46$). These means were significantly higher compared to rates found in the instrumentally violent males ($M = 0.86$) and the reactively violent males ($M = 0.95$).

Prediction of violence subtype

To examine the contribution of factors to the prediction of instrumental violence, a logistic regression was run for each gender, utilising significant continuous and dichotomous variables that demonstrated a relationship or association with instrumental or reactive violence (Tables 6, 7, 9). As sample sizes were small, only the most significant variables were used to run the logistic regression. Therefore, only variables that demonstrated a significant relationship to violent subtype at the $p \leq .01$ or lower were included. This resulted in nine variables related to instrumental regression, regardless of gender: personality disorder, history of child physical abuse, number of childhood abuses, number of diagnoses, severity of violence, criminal versatility, witnessing violence in family, callousness and antisocial/procriminal attitudes. Furthermore, to explore a more gender specific model, all significant variables at the $p \leq .01$ for each gender were also examined. Four variables met these criteria in the

female portion of data: personality disorder, hallucinogen use, severity of self-harm/suicidal behaviour and criminal versatility. Similarly for males, four variables were noted: personality disorder, callousness, number of diagnoses, criminal versatility.

To protect against issues of multicollinearity, VIF and tolerance statistics were examined for the above listed variables, by gender and all variables were within appropriate recommendations (Field, 2005) for both genders. Additionally, correlation matrixes were also explored to provide further checks for problems with multicollinearity. Within the gender neutral variables for the male portion of the sample number of childhood abuses and childhood physical abuse were highly correlated ($r = .80, p \leq .01$), so number of childhood abuses was removed and childhood physical abuse retained because it had a stronger association with instrumental violence. While this same correlated relationship was not evident in the female portion of data, to make results comparable between genders, number of childhood abuses was eliminated for both genders. All other correlations were within acceptable limits.

Examination of crosstabs of antisocial attitudes and callousness indicated that for females, the expected cell sizes of this variable were too small (< 5) to be used in a regression. As such, the six 'gender neutral' variables were added to a separate logistic regression equation for females (Table 10) and males (Table 11).

As this analysis was primarily exploratory, with no *a priori* hypotheses regarding which variables may be significant, variables were entered into a forwards LR stepwise equation (Field, 2009). Two items were significant in the final regression equation for females (Table 10). Presence of a personality disorder was added on the first step and produced a significant equation [$\chi^2 (1) = 15.83, p < .001$] and accounted for 39.0% of the variance (Nagelkerke $R^2 = .392$). Witnessing violence in the family was added on step 2, and this final equation was also significant [$\chi^2 (2) = 20.93, p < .001$] and accounted for a greater proportion of variance than the presence of a personality disorder on its own (Nagelkerke $R^2 = .492$). The final model correctly predicted 76.1% of cases and the Hosmer-Lemeshow test was non-significant [$\chi^2 (2) = .853, p = .653$].

Table 10. Logistic regression for factors predictive of instrumental aggression - Females (n = 69)

Predictor	B (SE)	Wald's χ^2	df	Sig	Exp ^(B)	95% CI for Exp ^(B)	
						Lower	upper
Step 0							
Constant	-0.35 (.30)	1.38	1	0.24	0.70		
Step 1							
Presence of PD	2.83 (0.85)	11.06	1	.001	17.00	3.20	90.25
Step 2							
Presence of PD	3.24 (0.98)	10.89	1	.001	25.61	3.73	175.76
Witnessed violence	1.80 (0.88)	4.23	1	.040	6.05	1.09	33.67

CI = Confidence interval

The same method was used to examine the male portion of the data with the stepwise equation retaining two variables in the final model (Table 11). Personality disorder was first added, and produced a significant equation [$\chi^2(1) = 8.96, p < .01$] which accounted for 21.7% of the variance (Nagelkerke $R^2 = .217$). Criminal versatility was added on the second and final step, resulting in a more significant equation [$\chi^2(2) = 14.04, p \leq .001$] which accounted for increased variation as well (Nagelkerke $R^2 = .326$). The final model correctly predicted 77.4%. Hosmer-Lemeshow test was non-significant [$\chi^2(7) = 4.26, p = .750$].

Table 11. Logistic regression for factors predictive of instrumental aggression - Males (n = 67)

Predictor	B (Se)	Wald's χ^2	df	Sig	Exp ^(B)	95% CI for Exp ^(B)	
						Lower	upper
Step 0							
Constant	-.750 (.29)	6.50	1	.011	.47		
Step 1							
Presence of PD	1.86 (.65)	8.26	1	.004	6.42	1.81	22.79
Step 2							
Presence of PD	1.55 (.69)	5.15	1	.023	4.73	1.24	18.10
Criminal versatility	0.47 (.22)	4.48	1	.034	1.60	1.04	2.48

CI = Confidence interval

To ensure that the exclusion of number of childhood abuses did not unduly influence the results of the regression equation, number of childhood abuses was included in place of childhood

physical abuse and the analyses were again computed. Regression equations for both genders were nearly identical to results with childhood physical abuse, as such it was considered appropriate to continue with the elimination of number of childhood abuses.

To determine the best model for each gender, variables that were significantly associated with violence subtype that were specific to each gender were also examined. For females, the two significant gender neutral variables were force entered (on block 1), with hallucinogen use, self-harm/suicidal severity and criminal versatility added stepwise on block 2. The final model resulted in witnessing violence becoming non-significant (Table 12) but the overall model was significant [$\chi^2 (3) = 20.63, p < .001$] and accounted for 48.5% of the variance (Nagelkerke $R^2 = .485$). The final model however only correctly predicted 71.7% of cases, which was slightly worse than the original model without hallucinogen use. Hosmer and Lemeshow test indicated a good fit [$\chi^2 (4) = 4.06, p = .397$].

Table 12. Final Model for logistic regression predictive of instrumental violence with gender specific factors - Females (n = 69)

Predictor	B (SE)	Wald's χ^2	df	Sig	Exp ^(B)	95% CI for Exp ^(B)	
						Lower	upper
Personality disorder	2.61 (0.89)	8.63	1	.003	13.61	2.39	77.62
Witnessing violence	0.69 (0.88)	0.62	1	.431	1.99	0.39	11.12
Hallucinogen use	1.95 (1.02)	3.69	1	.052	7.05	0.96	51.71

CI = Confidence interval

The same method was used for males, with the two significant gender neutral variables force entered on block 1. The two remaining male-specific variables (callousness and number of diagnoses) were entered stepwise on block 2 (Table 13) resulting in a final model which was significant [$\chi^2 (3) = 24.19, p < .001$] and correctly predicted 80.0% of the cases, accounting for 48.4% of the variance (Nagelkerke $R^2 = .484$). Notably, this increased the accuracy of the model with the original six factors. However, the inclusion of lack of empathy reduced the significance of criminal versatility in the final model. The Hosmer and Lemeshow test indicated the final model was a good fit [$\chi^2 (7) = 10.06, p = .185$].

Table 13. Final Model for logistic regression predictive of instrumental violence with gender specific factors - Males (n = 67)

Predictor	B (SE)	Wald's χ^2	df	Sig	Exp ^(B)	95% CI for Exp ^(B)	
						Lower	Upper
Personality disorder	1.97 (0.73)	7.38	1	.007	7.17	1.73	29.71
Criminal versatility	0.43 (0.22)	3.69	1	.055	1.53	0.99	2.39
Lacks empathy	-1.51 (0.75)	4.12	1	.042	4.54	1.05	19.59

CI = Confidence interval

Gender differences in protective factors related to violence subtype

Examination of strength factors indicated that there were minimal differences between genders and violence subtype. Percentages of protective factors for the entire sample are presented in Table 14. Chi-square analysis was used to examine significant associations between strengths and gender, as well as strengths and violence subtype. To protect against familywise error, a more restricted probability value ($\alpha = .05/11$) is again utilised ($p \leq .0045$). There were no significant associations between protective factors and both gender and violence type at this probability level. If a more lenient probability is utilised, there was one significant difference between genders in regards to protective factors, with more females displaying employment stability compared to males [$\chi^2 (1) = 6.24, p = .01, \text{Cramer's } v = .28$]. Similarly, there was one strength variable that was significantly different between violence subtypes. Those who were categorised as reactively violent were more likely to have positive family support [$\chi^2 (1) = 5.35, p = .02, \text{Cramer's } v = .20$].

Table 14. Percentage of Protective Factors in the Entire Sample (N = 136)

Item (%yes)	% (n)	Item (%yes)	% (n)
Self-efficacy	24.3% (33)	Stable partner	8.1% (11)
Strong self-esteem	2.9% (3)	Positive peer network	3.7% (5)
Educational strengths	40.4% (55)	Prosocial individuals	48.5% (66)
Positive fam. support	59.6% (81)	Positive attitude to intervention(s)	36.0% (49)
Employment stability	19.1% (26)	Resiliency	21.3% (29)
Structure activities	10.3% (14)		

Question 3. Gender differences between START scores

Scores of current strength (mean = 19.26, SD = 7.91) and risk (mean = 23.32, SD = 7.87) as measured by the START were explored (Table 15) as were the effect of gender and violence subtype on these scores. Number of STARTs collected did not differ between genders [$\chi^2(1) = 1.82, p > .05$] or violence subtype [$\chi^2(1) = 2.25, p > .05$].

Differences were determined using a two-way ANOVA. There was no effect of gender [$F(1, 118) = 1.65, p > .05$] or violence subtype on risk scores [$F(1, 118) = 0.29, p > .05$], nor was the interaction of the two significant [$F(1, 118) = 0.26, p > .05$]. Similarly there was no effect for gender [$F(1, 119) = 0.22, p > .05$] or violence type [$F(1, 119) = 1.09, p > .05$] on strength scores, or an interaction between gender and violence type [$F(2, 119) = 0.34, p > .05$].

Table 15. START scores by violence subtype and gender (N = 134)

Item	Females			Males		
	n	Instrumental (SD, range)	Reactive (SD, range)	n	Instrumental (SD, range)	Reactive (SD, range)
Total strength	65	21.05 (7.57, 9 - 39)	18.62 (8.43, 4 - 33)	62	19.48 (9.07, 7 - 38)	18.79 (6.92, 2 - 32)
Total risk	61	24.05 (9.06, 4 - 36)	24.08 (8.45, 9 - 37)	61	21.36 (6.91, 11 - 32)	22.92 (7.14, 8 - 38)

Question 4. Differences in institutional misconduct

Institutional misconducts were compared between violence subtypes and across genders. The time frame from which the misconducts covered varied between hospital (due to record practices and file availability) [$M = 32.40$ weeks, $SD = 16.04$, range = 3.43 – 74.43]. The time frame was significantly different between reactive ($M = 34.95$ weeks) and instrumental ($M = 28.18$ weeks) groups [$t(120) = 2.30, p < .05$]. The time frame did not differ between genders [$t(120) = 0.75, p > .05$]. Amount of institutional misconducts were averaged over the time frame to determine a weekly rate of institutional misconduct. Mean weekly scores of institutional misconduct are presented in Table 16, as are weekly severity rates.

Table 16. Mean weekly rates of institutional misconducts and mean weekly severity scores

Item	Females		Males	
	Instrumental (n = 27)	Reactive (n = 42)	Instrumental (n = 24)	Reactive (n = 43)
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Verbal aggression - rate	0.69 (1.29)	0.67 (1.22)	0.98 (1.46)	0.71 (1.24)
Verbal aggression - severity	1.48 (2.61)	1.51 (2.80)	2.39 (3.52)	1.78 (2.82)
Phys. aggression /objects – rate	0.13 (0.19)	0.16 (0.42)	0.02 (0.04)	0.10 (0.17)
Phys. aggression /objects –severity	0.21 (0.27)	0.26 (0.74)	0.05 (0.09)	0.18 (0.32)
Phys. aggression /people – rate	0.21 (0.52)	0.25 (0.82)	0.09 (0.10)	0.33 (0.85)
Phys. aggression /people – severity	0.37 (0.94)	0.42 (1.38)	0.15 (0.20)	0.56 (1.32)
Self-harm - rate	0.33 (0.66)	0.04 (0.10)	0.00 (0.00)	0.03 (0.08)
Self-harm - severity	0.73 (1.38)	0.08 (0.18)	0.00 (0.00)	0.04 (0.09)
Suicidal behaviour - rate	0.03 (0.07)	0.01 (0.02)	0.01 (0.01)	0.01 (0.02)
Suicidal behaviour - severity	0.07 (0.17)	0.02 (0.05)	0.01 (0.02)	0.01 (0.03)
Unauthorised leave – rate	0.02 (0.06)	0.002 (0.01)	0.01 (0.03)	0.01 (0.02)
Unauthorised leave – severity	0.09 (0.22)	0.005 (0.02)	0.03 (0.09)	0.02 (0.05)
Sex. Inappropriate – rate	0.04 (0.11)	0.02 (0.06)	0.24 (0.54)	0.06 (0.14)
Sex. Inappropriate - severity	0.07 (0.18)	0.04 (0.10)	0.44 (1.11)	0.08 (0.19)
Stalking – rate	0.002 (0.01)	0.01 (0.04)	0.03 (0.08)	0.006 (0.03)
Stalking - severity	0.002 (0.01)	0.02 (0.09)	0.05 (0.16)	0.01 (0.07)
Substance use – rate	0.008 (0.02)	0.006 (0.03)	0.03 (0.05)	0.01 (0.02)
Substance use – severity	0.008 (0.02)	0.01 (0.03)	0.03 (0.07)	0.01 (0.04)
Total misconducts – rate	1.45 (2.13)	1.18 (2.38)	1.40 (1.82)	1.26 (1.81)
Total misconducts – severity	3.0 (4.16)	2.36 (4.70)	3.14 (4.27)	2.65 (3.69)

Bold denotes a significant effect for gender or violence subtype exists. See table 17 for full details.

Severity on a scale of 1 – 4, where 4 indicates most severe form of behaviour (Appendix L)

To examine the effect of gender and violence subtype on institutional misconduct, a two-way ANOVA was conducted. Being mindful of the significant difference between follow-up times for the Instrumental and Reactive groups, data was explored to check for the presence of extreme numbers

that were influencing the difference between groups. Three outliers for the length of follow-up variable were noted for the reactive violence group, which when removed eliminated the significant difference between follow-up times. The two-way ANOVA was run with the three outliers, and without. As significant differences were the same regardless of the presence of the outliers, significant results for the entire sample are shown in Table 17.

Table 17. Significant Gender x Violence Subtype Analysis of Variance for Institutional Misconduct

Item	df	<i>F</i>	<i>p</i>	η^2 <i>partial</i>
Self-harm – rate				
Gender	1	8.11	.005	.068
Violence subtype	1	4.67	.033	.040
Gender x violence type	1	6.81	.010	.058
Error	111			
Self-harm – severity				
Gender	1	9.69	.002	.080
Violence type	1	6.04	.015	.052
Gender x violence type	1	7.54	.007	.064
Error	111			
Suicidal behaviour – rate				
Gender	1	4.59	.034	.040
Violence type	1	1.75	.189	.015
Gender x violence type	1	3.21	.076	.028
Error	111			
Suicidal behaviour – severity				
Gender	1	4.75	.031	.041
Violence type	1	2.22	.139	.020
Gender x violence type	1	2.85	.094	.025
Error	111			
Unauthorised leave – rate				
Gender	1	0.28	.600	.002
Violence type	1	4.65	.033	.040
Gender x violence type	1	2.41	.124	.021
Error	111			
Unauthorised leave – severity				
Gender	1	1.01	.318	.009
Violence type	1	5.70	.019	.049
Gender x violence type	1	2.97	.088	.026
Error	111			
Sex. Inappropriate – rate				
Gender	1	6.69	.011	.057
Violence type	1	4.23	.042	.037
Gender x violence type	1	2.81	.097	.025
Error	111			
Sex. Inappropriate – severity				
Gender	1	5.32	.023	.046
Violence type	1	4.68	.033	.040
Gender x violence type	1	3.30	.072	.029
Error	111			

η^2 *partial* = partial eta squared ; **Bold** denotes significant effect ($p \leq .05$), or approaching significance ($p < .1$).

Significant effects of gender, violence subtype and the interaction of the two were found for self-harm rates and severity. Significant main effects of gender and violence subtype are also noted for sexually inappropriate behaviour rates and severity. A more mixed result is found for suicidal behaviour rates and severity with only a main effect for gender noted (with the interaction of gender and violence approaching significance). Similarly, there was a significant main effect of violence type on unauthorised leave, with the interaction of violence type and gender only approaching significance.

Question 5. Psychopathic traits and violence subtype

Descriptive statistics for the Levenson Self-Report Psychopathy Scale are presented in Table 18. The primary and secondary psychopathy scales of the LSPS are made up of a different number of items, as such scores are not directly comparable. Therefore percentages are computed for the primary psychopathy scale and secondary psychopathy. A two-way ANOVA was conducted to examine the effects of gender and violence subtype on LSPS scale scores and total. No significant main effects of gender or violence subtype, or the interaction of the two was significant. Visual inspection of the scores indicated that a trend to the expected direction, with instrumental offenders demonstrating higher total psychopathy scores and higher primary psychopathy subscale scores. Reactive offenders demonstrated higher secondary psychopathy scores compared to instrumental offenders, and to their instrumental psychopathy scores. Small cell size may be contributing to the non-significant result.

Table 18. Mean percentages of the LSPS, presented by violence subtype and gender

Item	Females			Males		
	All Females (n = 9)	Instrumental (n = 5)	Reactive (n = 4)	All Males (n = 10)	Instrumental (n = 4)	Reactive (n = 6)
	M (SD)			M (SD)		
Primary psychopathy	48.95 (14.55)	53.75 (15.29)	42.97 (12.92)	46.87 (15.96)	50.78 (16.46)	44.27 (18.29)
Secondary psychopathy	67.50 (11.46)	65.50 (12.91)	70.00 (10.61)	59.50 (18.29)	55.62 (6.57)	62.08 (23.58)
LSPS total	58.33 (10.74)	60.60 (13.24)	55.50 (7.37)	53.80 (14.26)	54.75 (11.87)	53.17 (16.74)

Discussion

This study aimed to explore the construct of instrumental and reactive violence in a sample of inpatients, including examining risk factors and protective factors for these two subtypes of violence, and the longer term implications for the subtype of violence committed.

Examining gender differences between historical factors indicated that female inpatients in this study had psychosocial histories characterised by abuse, difficulties in the family of origin, mental health problems (e.g., depression/anxiety) and a history of self-harm/suicidal behaviour. Male inpatients demonstrated higher levels of substance abuse, schizophrenia and criminality, including associated attitudes such as lack of remorse and empathy. These differences between genders have been demonstrated consistently by other literature in samples of prisoners (Jordan, Schlenger, Fairbank, & Caddell, 1996; Teplin, Abram, & McClelland, 1996; Teplin, Abram, McClelland, Dulcan, & Mericle, 2002) and inpatient offenders (Nicholls et al., 2009; Robbins, Monahan, & Silver, 2003).

As the females in this sample presented with more dysfunctional backgrounds, so too did instrumental aggressors when differences between violent subtypes were explored. Not only did instrumentally violent inpatients have higher levels of childhood abuse, family dysfunction and mental health difficulties similar to that seen in female inpatients, they also presented with factors that were significantly associated with male inpatients such as substance misuse problems and an increased level of criminality.

Having an instrumentally aggressive index offence was also associated with higher levels of overall criminality, including history of gun use, severity of violence and criminal versatility, as well as associated personality traits such as callousness and antisocial attitudes. Notably, this difference between instrumental and reactive aggressors appeared more pronounced within the male portion of the sample, suggesting a more traditional antisocial orientation compared to the female group. As has been noted previously in research, instrumental aggression has been demonstrated to have links to later criminal behaviour in males (Vitaro et al., 1998), as well as more severe physical violence and

delinquency (Pulkkinen, 1996; Vitaro, Brendgen, & Tremblay, 2002) compared to reactive aggressors.

Examination of differences between violence subtypes, divided by gender, indicated that the sample of female inpatients displayed a greater number of significant differences between instrumental and reactive aggressors compared to males, suggesting a greater level of variability in violent female inpatients. Instrumentally violent females, compared to instrumentally violent males, demonstrated higher levels of childhood physical and/or sexual abuse, dysfunctional family histories including parental substance abuse, as well as mental health problems, including a diagnosis of personality disorder, depression and anxiety, drug use and more severe self-harm and suicidal behaviour. Furthermore, these women displayed high levels of criminal versatility, including nonviolent offending, callousness and lack of remorse.

This increased level of criminality was also noted in the instrumentally violent males, but their histories did not appear as marked by maltreatment and mental health problems compared to their female counterparts. It is noted that similarly to instrumentally violent females, instrumental males were highly likely to have a diagnosis of personality disorder and have experienced physical abuse as a child. They were also more likely to have witnessed violence in their family suggesting a childhood characterised by violence from a young age, more so than was evident with instrumental females. Furthermore, these instrumentally violent males demonstrated a more severe current level of violence, indicating an ongoing pattern of violent behaviour.

The majority of the two-way interactions between violence subtype and gender on historical factors were not significant except for severity of self-harm/suicidal behaviour. The instrumentally violent females displayed the most severe level of self-harm/suicidal behaviour which was significantly higher than that found in the reactively violent females, and both violence groups in males. Notably, while the instrumentally aggressive females displayed the most severe self-harm/suicidal behaviour, males who were instrumentally violent displayed the lowest levels, suggesting this was a highly divergent factor between genders and violence type. It is likely that due

to small cell sizes, more two-way interactions did not emerge, as would potentially be expected (e.g., within the areas of abuse and mental health, given significant differences between both genders and violence type). Subsequent research in this area could aim to parse out the interaction between violence type and gender utilising larger samples.

The finding that instrumental violence in females was linked to severity of self-harm/suicidal behaviour may be considered unusual given expectations regarding emotional dysregulation and reactivity that are associated with self-harm behaviour (such as associated with borderline personality), which may lead to an expectation that reactive violence would be more likely associated with this variable. While it is acknowledged that this variable relied upon a self-developed scale, it is notable that this relationship was also reflected in the measures of self-harm and suicidal behaviour as institutional misconduct, as such providing validity to the created scale. Furthermore, this same finding was not evident in the instrumentally violent males, which in keeping with the research would be expected given the negative relationship between psychopathic traits (assuming associations between psychopathy and instrumental violence) and self-harm/suicidal behaviour. Research has shown links in with violence and recidivism and self-harm behaviours in females (Bonta et al., 1995; Fagan & Western, 2003; Weizmann-Henelius et al., 2004a) which is not evident in males, (Fagan & Western, 2003). Unfortunately, motivations and intent behind self-harm and suicidal behaviours were not assessed so the full explanation of this relationship is currently unclear. As such, it is unknown whether self-harm was motivated by emotional dysregulation or utilised as an instance of self-directed aggression to achieve an end goal beyond an emotional release. A focus on examining underlying motivations to self-harm and how they may be connected to a wider use of violence would be important to furthering this result.

Regardless of gender, the presence of a personality disorder was the most predictive factor contributing to the occurrence of instrumental violence in this study. Within this sample, significantly more females were diagnosed with borderline personality disorder (BPD), while males were more frequently diagnosed as having antisocial personality (ASPD; it is noted that while other personality diagnoses in this sample existed, they were usually personality disorder not otherwise specified, $n =$

10, 7.4%). Research has suggested that BPD represents a female expression of ASPD (Beauchaine et al., 2009; Paris, 1997; Verona & Vitale, 2006) which may explain how the same violent outcome was connected to different personality diagnoses in this study.

Studies have shown that there is a significant overlap in cluster B disorders in terms of the diagnostic criteria and behavioural correlates, such as history of abuse, interpersonal violence and emotional regulation, despite differences in rates of ASPD and BPD between male and female offenders (Beauchaine et al., 2009; Warren & Burnette, 2012). Warren and Burnette (2012) utilised exploratory factor analysis to examine factors in all diagnostic criteria for the cluster B disorders (antisocial, borderline, narcissistic and histrionic). Their analyses resulted in three distilled factors which each contained a mixture of diagnostic criteria from all cluster B disorders: factor 1) represented a psychopathy-like factor, factor 2) was characterised by behavioural and emotional instability such as found with borderline individuals and factor 3) was a narcissistic self-absorption factor (Warren & Burnette, 2012). Across genders, all three factors were associated with a higher risk of violence (as assessed by the HCR-20) but gender differences were noted regarding behavioural correlates (Warren & Burnette, 2012). Within males, the psychopathy factor (factor 1) was more strongly related to childhood physical violence compared to women, whereas childhood neglect was more strongly related to this factor in females. The seeming convergence of these cluster B disorders suggests a broader pattern of emotional dysregulation and pathology in violent individuals, with varying behavioural correlates (Paris, 1997; Warren & Burnette, 2012) which is illustrated by the present study.

While gender-specific risk factors (e.g., history of abuse) appeared to distinguish between violence subtypes, the role of these factors in predicting type of violence appeared minimal. However, it is noted that criminality factors (e.g., lack of empathy, criminal versatility) appeared to have a role in predicting instrumental violence in males, while historical family and mental health factors (e.g., witnessing family violence, hallucinogen use) were more predictive of instrumental violence in females. These results echo those of previous studies which demonstrated differential associations between violence and gender where antisocial factors are more predictive of violence in males and

psychosocial problems are more predictive of violence in females (Wareham & Boots, 2011). Results suggested that there exists an additional degree of psychosocial dysfunction in females who utilised instrumental violence which was not evident in instrumentally aggressive males. Furthermore, while these males appeared to fit a more 'traditional' risk profile in regards to antisocial attitudes and orientations, the females in this study suggested a slightly more gendered profile in which mental health and maltreatment variables may be important in understanding the origins of female instrumental violence.

Prior research has demonstrated that instrumental aggression can be linked to maladjustment and antisocial attitudes and behaviours. Instrumental aggression in adolescent boys is related to higher levels of maladjustment (Vitaro et al., 1998) and 10 year follow-up found that instrumental aggression at age sixteen was related to binge drinking, antisociality and psychopathy in adulthood (Fite et al., 2010). Notably, in this sample of males, instrumental aggression was not related to any measure of negative emotionality, whereas reactive aggression was (Fite et al., 2010). This may represent a gender difference in correlates with violence subtype when it is considered that within the present study, instrumental violence in females was associated with factors indicative of negative emotionality. Prior research has also shown similar links in which instrumentally aggressive females were more likely to display internalising disorders and substance abuse (Pulkkinen, 1996). Notably, across both genders, instrumental aggression has also demonstrated links to personality disorders (Nouvion, Cherek, Lane, Tcheremissine, & Lieving, 2007).

Historical protective factors were not significantly different between instrumental or reactive aggressors, or between genders. Furthermore, overall rates of protective factors were low. It is difficult to ascertain if this result is due to an actual low level of protective factors within this sample, or reflects a tendency to neglect the recording of protective factors within clinical documentation (as such impacting on this study's data collection). While differences between current strength scores were also non-significant, instrumental aggressors did display higher total strength scores, particularly in female instrumental aggressors, but it is likely a larger sample is needed to elucidate this difference.

This may be especially interesting considering the complex treatment needs female instrumental aggressors in this study appeared to present with.

In addition to increased criminality, regardless of gender, instrumental aggressors displayed more institutional misconduct, including self-harm and suicidal behaviour, sexually inappropriate behaviour and unauthorised leave. Significant interactions for gender and violence subtype upon rates and severity of institutional misconduct was noted, with females who were classified as instrumentally violent exhibiting significantly more self-harm and suicidal behaviour, and at a higher severity compared to reactively violent females, and compared to men across both violence groups. This pattern was the same for unauthorised leave, but at a less significant level. Instrumentally violent males demonstrated significantly more sexually inappropriate behaviour within the hospital compared to their reactive male counterparts, as well as females in both violence groups. Consistently, those classified as reactively violent, regardless of gender, demonstrated lower levels of institutional misconduct compared with instrumentally violent men and women, regardless of the category of behaviour. Furthermore, it is interesting to note that instrumental aggression was associated with misconducts other than violence (e.g., unauthorised leave and sexually inappropriate behaviour). This may further suggest an ongoing pattern of maladaptive behaviour due to enduring personality dysfunction. Furthermore, it highlights the importance of considering violence classification as not only a means of identifying treatment needs, but to target ongoing management risks.

To further the examination of personality in this study, an exploration regarding the role of psychopathic traits in this relationship was also undertaken using the LSPS. Possibly due to small sample sizes, results were non-significant. However, the non-significant results could also be explained by validity issues with the scale itself in its ability to identify psychopathic traits in inpatients, and distinguish between psychopathic subtypes. Alternatively, relying on volunteer participants may have also introduced a bias. It is possible that agreement to participate indicates a general willingness to assist others and a more prosocial orientation, as such potentially indicating an individual who is less likely to possess psychopathic traits. Regardless, this would be an important area of further exploration in future research given that a number of studies have pointed to increased

psychopathy being strongly associated with instrumental violence (Bobadilla et al., 2012; Cornell et al., 1996; Nouvion et al., 2007; Raine et al., 2006; Vitacco et al., 2009; Woodworth & Porter, 2002).

Not only does psychopathy help explain the associated increase of criminality with instrumental aggression, but it may also begin to explain the apparently remorseless approach to using violence as a justifiable means to an end. Although this study used the LSPS, the inclusion of a more robust measure of psychopathy may help to further examine the apparent links between borderline personality, self-harm behaviours and violence noted in this study, which has been indicated in previous research findings by Verona and colleagues (Sprague et al., 2012; Verona et al., 2005; Verona et al., 2012). As previously noted, traits of psychopathy have been associated with higher levels of internalising behaviours, including self-harm (Kimonis et al., 2010), traumatic childhood experiences (Weizmann-Henelius, Gronroos, et al., 2010) and cluster B and depressive disorders (Weizmann-Henelius et al., 2004b) within female offending populations. Furthermore, these differences have been noted to be distinctive from the expression of psychopathy in males (Cook et al., 2010; Weizmann-Henelius, Gronroos, et al., 2010) and may begin to explain some of the apparent differences in psychosocial factors between genders in this study.

It is evident that instrumental aggression, as predicted by the presence of a personality disorder, indicates that violence was utilised as part of a dysfunctional pattern of behaviour. This is especially evident when we consider the extent of childhood maladjustment experienced by the instrumentally violent women in this sample and the subsequent psychosocial impact, such as mental health difficulties, and self-harm/suicidal behaviour. While instrumentally violent males had histories characterised by violence within the home, their histories were not marked by the same severity and level of childhood maladjustment and ongoing dysfunctional behaviour. It has been suggested that incarcerated females represent the most severely victimised and impaired (Jordan et al., 1996; Teplin et al., 1996). It has also been proposed that females who display highly antisocial behaviour (in this case, instrumental violence) possess an increased 'threshold of risk' compared to males (Eme, 1992; Yang & Coid, 2007). As such, a greater level of a risk is required to reach this heightened threshold, resulting in an individual who is more severely impaired, with a more deviant and extreme variant of

the difficulty (Eme, 1992; Silverthorn & Frick, 1999). If this theory holds true, females who demonstrate highly antisocial behaviour should display the greatest magnitude of psychological and environmental risk factors (e.g., mental health, history of abuse; Yang & Coid, 2007). It can be argued that instrumental violence represents an extreme variant of antisocial behaviour and as such, this theory explains why the instrumentally violent females in this study demonstrated increased levels of psychosocial maladjustment and mental health needs.

Future Directions and Implication for Practice

This study provided an initial examination of instrumental and reactive aggression in inpatients, as well as associated behavioural and historical correlates to these violence subtypes, however several limitations must be acknowledged. Collected data relied largely on archival sources, as such information and depth of data available was at times was poor, leading to the exclusion of several variables from analysis (e.g., employment difficulties, relationship dysfunction). Similarly, it was evident during the data collection process that recording practices for institutional misconducts varied between hospital in terms of detail and quantity of available records. As recording of institutional misconducts relied upon staff, variations may also exist in individual recording practices including thresholds of acceptable behaviour before an infraction was recorded, or willingness and consistency of reporting. Additional confounds may also exist within the male portion of the sample due to specific hospitals from which samples were gathered from. While according to the organisation no expected differences should exist in patients between hospitals, the accuracy of this is not fully known and may present an additional confound to results.

To further improve on initial findings presented here, future studies would benefit from including a more in-depth measure of psychopathy with a larger sample size to more fully illustrate potential underlying mechanisms for subtypes of violence. Due to small sample size, only a limited amount of variables could be included in the regression analysis and more complex analysis, such as path analysis was not possible. This is disappointing given the apparent complex, direct and indirect interactions at play between risk factors. Future studies should aim to utilise more sophisticated

analysis to advance understanding regarding the relationship between risk factors and offending. A non-violent comparison group may also provide interesting information regarding the role of historical variables in the commission of violence. Due to the small sample size, classification of violence was only dichotomous and as such the instrumental group also contained a mixed sample that used both instrumental and reactive violence. Parsing out potential differences between instrumental only offenders, mixed and reactive only offenders may provide more illuminating results. Furthermore, classification of inpatients into violent subtype relied up the index offence, potentially ignoring historical offences which may have altered group membership. While this was done for consistency across data collection, it may present an additional confound regarding group assignment. Additionally, many of the historical variables were only dichotomously coded. Again, more information may be gleaned from an in-depth data collection that allows for a greater consideration of a range of variables.

The instrumental/reactive violence dichotomy had been well documented in a variety of samples, including adolescents and male offenders. This study presents an initial evaluation of this classification system in female inpatients, as well as offending and behavioural correlates. Results demonstrated that instrumentally aggressive females presented with complex treatment needs and dysfunctional patterns of behaviour, more so than instrumentally violent males, highlighting the importance of considering violent subtypes when assess treatment needs. Furthermore, while instrumental aggressors presented with higher levels of institutional misconduct (subsequent to their offending), including increased severity of these actions, this was most significant for instrumentally violent females and self-harming behaviours, underscoring security and safety concerns for both the organisation and patients. As such, the evaluation of instrumental or reactive violence in inpatients, especially females, may prove an important aspect to assessing risk and understanding treatment needs.

**CHAPTER FOUR: CRITIQUE OF THE LEVENSON SELF-REPORT
PSYCHOPATHY SCALE**

Rationale

The Levenson Self-Report Psychopathy Scale was utilised as part of the research study presented in chapter three to examine the role of psychopathic traits and gender differences between instrumental and reactive violence. In trying to understanding the null results arising from the LSPS data, (i.e., that psychopathic traits had no connection to instrumental violence) several questions were raised regarding the efficacy of the LSPS as a self-report measure of psychopathy, including its applicability to a female population. Due to these concerns, this chapter aims to critically review the Levenson Self-Report Psychopathy Scale in hopes of providing a clearer context for the results reported in the preceding chapter.

The Levenson Self-Report Psychopathy scale (Levenson et al., 1995) is a self-report questionnaire, originally designed to assess behavioural, affective and personality traits associated with psychopathy in a non-clinical population. Based upon empirical literature on psychopathy, items were designed to assess two factors of psychopathy; primary and secondary psychopathy.

Background

Psychopathy is characterised by a combination of interpersonal, affective and behavioural traits such lack of empathy and remorse, callousness, impulsiveness, lying, manipulation and superficial presentation. Originally developed by Cleckley in 1941, he described the concept of psychopathy as something distinct from a variety of clinical presentations such as psychosis or the “ordinary criminal” describing the psychopathic individual as “concealing behind a perfect mimicry of normal emotion, fine intelligence and social responsibility, a grossly disabled and irresponsible personality” (Cleckley, 1941, page 244, 385). The sixteen criteria for psychopathy originally proposed by Cleckley (1941) were later expanded upon by Robert Hare in the development of a structured assessment for the disorder, the Psychopathy Checklist (Hare, 1991, followed by the Psychopathy Checklist – Revised in 2003). Psychopathy, as assessed by the PCL-R (Hare, 2003) has been strongly linked to violence and sexual aggression across offender populations (Coid et al., 2009; Schmidt, Campbell, & Houlding, 2011), therefore accurate identification of it is integral to fully understanding the nature and extent of risk an offender may present with. In this vein, research into psychopathy has

exploded over recent decades, as the impact of the disorder is more fully recognised. As such, varying methods of assessing psychopathy for research purposes has become integral to the empirical advancement of the field, as it not only allows for a wider collection of data, but helps to expand our understanding of psychopathy beyond prisoner populations.

Levenson and colleagues (1995) conceptualised psychopathy as originating from social learning concepts, in addition to neurobiological deficits in anxiety and harm avoidance. He proposed that psychopaths develop an antisocial pattern of behaviour in which they are intrinsically motivated to consider their own rights and wishes above the rights of others (Levenson, 1992). Further influences to his theory were Karpman's (1948) conceptualisation of primary and secondary psychopathy, in which primary psychopaths were cold, callous and manipulative and secondary psychopaths were neurotic and anxious, engaging in antisocial behaviour because of emotional disorders such as impulsivity. Levenson et al., (1995) noted that the Psychopathy Checklist - Revised (PCL-R; Hare, 2003) offered the "most promising empirical approach" (p. 152) to psychopathy, including the incorporation of the two-factor model into its design. Therefore, Levenson and colleagues (1995) aimed to produce items that aligned themselves to the two-factor model offered by the PCL-R. Notably now, research has begun to move away from the two factor model of psychopathy, utilising three or four facets (e.g., Hare, 2003), perhaps calling into question the usefulness of the two factor conceptualisation of psychopathy. Levenson (1995) theorised that if psychopathy could be considered a continuous dimension, traits of psychopathy should be evident in a non-criminal, non-institutionalised population. It was hypothesised that endorsement of these items should be related to higher levels of antisocial actions and the presence of trait anxiety (neuroticism) would differentiate the two factors.

It was hoped that the LSPS would not only provided a method of assessing psychopathy in non-institutionalised population, but it also demonstrate that psychopathy existed on a continuum, occurring within both clinical and non-clinical populations. Importantly as well, this self-report measure aimed to operationalise and measure psychopathy without the inclusion of criminality, which was more in keeping with the original conceptualisation of psychopathy proposed by Cleckley (1941)

in his seminal work *Mask of Sanity* (Brinkley, Schmitt, Smith, & Newman, 2001; Lynam, Whiteside, & Jones, 1999).

Development

Questionnaire items (please see Appendix K for full list of items) were drawn from relevant literature, designed to reflect the PCL-R factors and be appropriate for college student, non-criminal populations. Primary psychopath items were designed to assess levels of selfishness and manipulation of others while secondary psychopathy items aimed to tap into impulsivity and a self-defeating lifestyle (Levenson et al., 1995). After pilot testing, 30 items were selected for inclusion. Factor analysis using principle-components analysis confirmed the preferred two-factor model, and the two factors were positively correlated ($r = .40$; Levenson et al., 1995). Using a .30 factor loading threshold for items, no items double loaded, but 4 items were excluded due to low variance endorsement (Levenson et al., 1995). Seven items were reversed to help control for random responding, and items were phrased to avoid desirability-manipulation, so if a respondent did endorse an item, it did not necessarily indicate that they were endorsing an item associated with disapproval (Levenson et al., 1995).

The original development sample consisted of 487 undergraduate students from an American university, with twice as many women than men. As hypothesised by the researchers, both the primary and secondary psychopathy scales on the LSPS were strongly associated with disinhibition, boredom susceptibility and antisocial activity (appropriate to college students such as cheating on exams and vandalism; Levenson et al., 1995). As predicted, secondary psychopathy was highly correlated with trait anxiety while contrary to expectations, primary psychopathy was weakly, albeit positively correlated (Levenson et al., 1995). However, it does not appear item alterations were made to address this issue.

Items, Scoring and Uses

The resulting measure consists of 26 items which are answered on a four point likert-type scale. Sixteen items make up the primary psychopathy scale, with items such as “in today’s world I feel justified doing anything I can to succeed” or “success is about survival of the fittest, I’m not concerned with the losers”. Ten items make up the secondary subscale, tapping into behavioural impulsivity with items such as “I am often bored” or “I find myself in the same sort of trouble, time after time”.

Despite being initially validated on a non-clinical sample, it was more widely used as a research tool for the assessment of psychopathy in clinical samples because it was a simple way of assessing psychopathy in varying populations (Brinkley, Diamond, Magaletta, & Heigel, 2008). It could be quickly and easily distributed to a large number of participants, and was freely available to use without copyright restrictions (Brinkley et al., 2008). Additionally, it was much less resource intensive than the PCL-R (Hare, 2003) which requires lengthy interviews and detailed file reviews in order to score and administer it (Brinkley et al., 2008). An added benefit of any self-report measure is that it allowed for the self-assessment of a subjective emotional state (or absence thereof) beyond what can necessarily be observed in individuals, or found recorded in files (Lilienfeld & Fowler, 2006).

As such, the Levenson Self-Report Psychopathy Scale (LSPS) is a potentially useful tool to assess psychopathy within forensic populations. This review presents a critique of the LSPS (Levenson et al., 1995) including an examination of its scientific properties such as measures of reliability and validity. It will assess its ability to measure the construct of psychopathy in both forensic and non-forensic populations, compare it to other self-report psychopathy scales and review the potential problems that may arise when assessing psychopathy via a self-report inventory.

Alternative assessments

While the PCL-R is often seen as the “gold-standard” in assessing psychopathy, it is labour and resource intensive, and difficult to apply widely in research settings⁶. An alternative to the PCL-R has been the creation of self-report psychopathy scales. In addition to the Levenson Self-Report Psychopathy Scale (LSPS; Levenson et al., 1995), two other self-report psychopathy scales have been developed: the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996) and the Self-Report Psychopathy Scale – III (SRP-III, Paulhaus, Newman & Hare, 2003). These two tools may be considered as reasonable, albeit longer, alternatives to the LSPS and have demonstrated correlations the PCL-R (Brinkley et al., 2008). Older measures of psychopathy, such as the Deviant scale from the MMPI will not be reviewed as they are generally accepted as unreliable self-report measures of psychopathy (Lilienfeld & Fowler, 2006).

The SRP-III is a 65 item measure, whose items were derived from factors that distinguished high and low PCL-R scorers in an offender sample and it is reflective of the two-factor model of psychopathy (Lilienfeld & Fowler, 2006). It is noted that the SRP-III (and previous versions) have less published research validating them (Lilienfeld & Fowler, 2006). Furthermore, items specifically reference criminal convictions and therefore have a restricted applicability to populations other than prisoners.

More akin to the LSPS, the PPI was designed to assess psychopathy within non-criminal populations (Lilienfeld, 1990). It consists of 187 items, made up of eight subscales (e.g., Machiavellian Egocentricity, Social Potency and Impulsive Non-confirmatory) that cluster into two higher order factors similar to the primary and secondary psychopathy distinction (Lilienfeld & Fowler, 2006). Items were drawn from an exploratory approach to test construction, drawing from a range of characteristics identified in the literature (Lilienfeld & Fowler, 2006), therefore it was not designed to replicate the PCL-R. Additionally, it has received criticism regarding its lack of validity with laboratory based tasks associated with psychopathy (Lilienfeld & Fowler, 2006) and its ability to

⁶ This criticism can also be applied to the screening version of the PCL-R which although it was developed to be a shorter assessment for psychopathy, still requires a 30 – 60 minute interview, as well as collateral sources of information, such as file review (Lynam et al., 1999). Therefore the tool is still more labour intensive than a self-report questionnaire and difficult to administer when collateral information is not available (e.g., community samples).

distinguish between prisoner and non-prisoner populations (Chapman, Gremore & Farmer, 2003). It has also been suggested that the PPI operationalises psychopathy differently than the PCL-R, and as such, does not necessarily lend itself as an equal substitute (Poythress et al., 2010).

In a comparison study of the performance of PPI and the LSPS in a college sample, results were inconsistent (Falkenbach, Poythress, Falki, & Manchak, 2007). While both measures demonstrated good internal consistency [$\alpha = .88$ (PPI) and $.82$ (LSPS)], the totals of the PPI and LSPS were only moderately correlated ($r = .52, p < .01$), which is potentially concerning since they are supposed to measure the same construct (Falkenbach et al., 2007). Furthermore, the two LSPS scales were significantly correlated ($r = .21, p < .05$) while the two PPI scales were not, highlighting validity concerns that the PPI scales are tapping into separate constructs. The LSPS primary scale showed poor discriminant validity, correlating more strongly with secondary psychopathy scale on the PPI ($r = .49, p < .01$) than with the primary psychopathy scale, and this relationship was almost as strong as the relationship between the two secondary psychopathy scales of the LSPS and PPI ($r = .53, p < .01$). While both factors on the PPI demonstrated the predicted relationship with a measure of anxiety (factor 1 was negatively correlated and factor 2 was positively correlated), both LSPS factors were positively correlated with anxiety, highlighting concerns with the discriminant validity of the primary psychopathy scale on the LSPS.

Similarly, using the three factor model⁷ of the LSPS (rather than the original two factor model) in a mixed sample of college students and prisoners, each of the three factors, plus the LSPS total were significantly related to the PPI total ($r = .68, p < .001$) and PPI factor scores ($r = .10 - .67, p < .001$, Sellbom, 2011). The LSPS total, factor 1 and factor 2 also demonstrated convergent validity with another measure of psychopathy, the SRP scale ($r = .64, .66, .42, p < .001$, respectively; Lynam et al., 1999). Notably, the SRP total was related to factor 1 more strongly than factor 2 (Lynam et al., 1999) suggesting that factor 2 of the LSPS is reflecting a different construct of psychopathy as measured by the SRP. Comparisons of the three self-report inventories yield inconsistent results and point to a need for further research.

⁷ The three-factor model is discussed in greater depth in the construct validity section

Evaluation of Scientific Properties

Reliability

To evaluate the LSPS, a number of characteristics need to be considered, such as the reliability and validity of the scale, as well as the presence of appropriate norms for its use (Kline, 1986). Reliability is the scale's ability to be interpreted successfully across different situations (Field, 2005). Three types of reliability can be considered when evaluating a psychometric measure: internal reliability, inter-rater reliability and test-retest reliability.

Test-Retest

Test-retest reliability indicates that the construct being measured is being measured stably, over time, with no confounds affecting the outcome. As this scale attempts to tap into a personality construct, it is expected that test-retest reliability should be high. Indeed, in a sample of male college students, the one known study reporting test-retest reliability ($n = 70$), after eight weeks found it was high ($r = .83, p < .01$; Lynam et al., 1999).

While self-report inventories are not scored by separate raters, reliability can also be considered in terms of diagnostic agreement between scales purporting to measure the same construct. Only one known study reported Kappa coefficients for the LSPS, examining diagnostic agreement for psychopathy with the PCL-R (Brinkley et al., 2001). Diagnostic agreement between the PCL-R and the LSPS was poor when classifying individuals as low, moderate or high psychopathy ($k = 0.11$). It performed better when utilised to only identify extreme scores ($k = 0.47$). In addition, there was an effect of ethnicity on diagnostic ability, as diagnostic agreement was stronger for Caucasians prisoners ($k = 0.57$) compared to African-Americans prisoners ($k = 0.38$; Brinkley et al., 2001). Interpretation guidelines from Landis and Koch (1977) suggested that these scores are at best fair to moderate. Thus it is noted by Brinkley and colleagues (2001) that extreme scores on the LSPS may reflect a more prototypical psychopath (versus the subclinical, "successful psychopath") and as such be better matched to psychopaths as described by PCL-R scoring criteria which is designed for a

criminal population. In turn, this means it could have potential as a measure for both non-criminal and criminal groups, however caution may be warranted when using the measure on groups unlikely to exhibit excessive psychopathic traits (e.g., offenders classified as low risk).

Internal Consistency

Internal consistency assesses the ability of all the items on a scale to work together as a unified construct. As such, the scale should be self-consistent, with all items tapping into the same paradigm. Cronbach's alpha is a model of internal consistency, based on the average inter-item correlation, where a score of greater than .7 is considered "good" reliability, and scores below this are questionable to poor (Kline, 2000). The LSPS has demonstrated relatively good internal consistency, especially for the total scale and primary psychopathy factor. For example, within college populations, internal consistency was robust, demonstrating Cronbach alphas of greater than .8 for the primary psychopathy factor ($\alpha = .82 - .88$, Falkenbach et al., 2007; Levenson et al., 1995; Lynam et al., 1999; McHoskey, Worzel, & Szyarto, 1998) and for the total scale ($\alpha = .82$, Falkenbach et al., 2007). Similar to college samples, internal consistency for offender samples was robust on the primary psychopathy scale (e.g. $\alpha = .83 - .84$, Brinkley et al., 2001; Epstein, Poythress, & Brandon, 2006) and the total scale (e.g. $\alpha = .85 - .87$, Brinkley et al., 2001; Epstein et al., 2006). However, the LSPS secondary psychopathy factor consistently demonstrated less acceptable reliability in college students (e.g. $\alpha = .63 - .71$, Levenson et al., 1995; McHoskey et al., 1998; Lynam et al., 1999; Falkenbach et al., 2007) and offender samples (e.g., $\alpha = .69 - .77$, Brinkley et al., 2001; Epstein et al., 2006), rarely reaching acceptable limits. These results suggested that there are potential difficulties with the secondary factor of the LSPS, especially when compared with the success of the total scale and primary factor.

Furthermore, studies examining a three-factor model in the LSPS have not demonstrated better internal consistency than the two-factor models. In a mixed gender sample of college students, reliability for the total scale was strong ($\alpha = .84$, Sellbom, 2011), as was the modified factor 1 (Egocentricity $\alpha = .83$, Sellbom, 2011). However the modified factor 2 (Antisocial) and newly created factor 3 (Callousness) demonstrated barely acceptable reliability ($\alpha = .62, .61$, Sellbom,

2011). This pattern was strikingly similar to reliability found in a large sample of female prisoners, where the modified factor 1 scale (egocentricity) demonstrated robust internal consistency ($\alpha = .82$) compared to the minimally acceptable levels noted on the Antisocial scale (f2) and Callousness scale (f3, $\alpha = .69, .63$ respectively, Brinkley et al., 2008). Overall, reliability for the LSPS appears unclear, ranging from good to questionable levels depending on the scale, with recommended caution exercised when interpreting results from the secondary psychopathy factor.

Validity

In addition to reliability measures, consideration of validity is important to accurately assess if the scale is measuring what it has set out to measure. For a test to be meaningfully valid, the test must demonstrate that inferences drawn from the scale are appropriate and useful. Test validity falls into three broad areas: content validity, construct validity and criterion-related validity.

Content

Content validity is concerned with the extent to which individual items in the measure represent the full range of the construct (Field, 2005). An examination of content validity between genders in college students ($N = 1517$, 58.9% female) using Graded Response Theory indicated that there was differential item functioning between genders, as well as discrimination parameters and items thresholds (Gummelt et al., 2012). For example, item 10 ("I often admire a really clever scam") demonstrated a poor relationship to the overall measure, as such could be removed from the scale. Furthermore, gender differences for item endorsement were found for a number of items. Men were more likely to endorse items concerning proneness to boredom, impulsivity and actively causing harm to others (e.g., I feel justified doing anything I need to succeed) whereas women were more likely to endorse more passive items concerning selfishness and manipulation (e.g., what's right is whatever I can get away with; Gummelt et al., 2012). These differences may indicate gender bias within the content of the scale, specifically with item descriptions and point to the need for further refinement of the concept of psychopathy in females.

Construct

Construct validity is important for a test which measures complex and multi-faceted theories, such as personality construct like psychopathy. The LSPS purports to measure two dimensions of psychopathy: primary and secondary (Levenson et al., 1995). However, the two-factor model proposed by Levenson et al. (1995), and confirmed by other researchers (Brinkley et al., 2001; Lynam et al., 1999; Wilson, Frick, & Clements, 1999) has been challenged as to whether it is the most appropriate fitting model.

The three-factor model was first proposed by Brinkley and colleagues (2008) who examined properties of the LSPS on a large sample of female prisoners (N = 430). Confirmatory factor analysis on their sample identified the two-factor model was a poor fit. Exploratory factor analysis, with a conservative factor loading of 0.40, supported a three-factor model with 19 of the original 26 items retained (Brinkley et al., 2008). The three-factors were F1; egocentric/manipulative (10 items), F2 antisocial/impulsive (5 items) and F3 callous/predatory (4 items). This three-factor model was further validated by Sellbom (2011), demonstrating that the 19 item, three-factor model recommended by Brinkley et al. (2008) fit a sample of male prisoners (n = 558) and mixed-gender college students. In addition, this model was considered to be the best fitting on the three samples out of five tested models⁸. As discussed above, these three factors demonstrated questionable to strong reliability ($\alpha = .61-.84$), with F1 demonstrating the strongest internal consistency in both studies and F3 the weakest (Brinkley et al., 2008; Sellbom, 2011). Authors of these studies theorised that the three-factor model was more consistent with current PCL-R literature that has challenged the original two-factor model, and argued to be better fitted by a three or four factor model (e.g. Bishopp & Hare, 2008; Cooke & Michie, 2001).

Criterion-related

Criterion-related validity assesses the extent to which the test is similar to external criteria that are theoretically comparable to what the scale is measuring. This validity measure can be

⁸ Five models drawn from the extant literature; one factor with all LSPS items, two-factors from the original Levenson et al., (1995) study, a modified two factor structure based upon Lynam et al., (1999), Brinkley et al.'s (2008) 3 factor, and a modified 3 factor model based upon Brinkley et al., (2008) restricted item loading.

evaluated concurrently, or predictively. Concurrent validity can be further divided into either convergent validity where two similar constructs are compared to one another, or discriminant validity which attempts to differentiate between dissimilar constructs. Reviews of the validity literature on the LSPS indicate that concurrent validity is most often assessed using a range of measures that assess personality and behavioural traits associated with psychopathy, other psychopathy measures, and laboratory tests that have been previously demonstrated to distinguish psychopaths from non-psychopaths.

The initial validation study of the LSPS demonstrated that scores were positively related to antisocial behaviours, disinhibition, and boredom (Levenson et al., 1995). Similar results in college students have been noted where LSPS total scores and factor scores have been positively related to measures of aggression (Falkenbach et al., 2007), drug and alcohol use and antisocial behaviour (Brinkley et al., 2001; Lynam et al., 1999) and violent offending in a sample of male offenders (Brinkley et al., 2001). Factor 2 has demonstrated a positive relationship with external measures of impulsive sensation seeking and aggression (McHoskey et al., 1998). Total LSPS scores in female offenders were related to higher aggression, hostility, antisocial behaviour and egocentricity (Brinkley et al., 2008).

Concurrent validation for the three-factor model was provided by Sellbom (2011), where factor 1 (egocentricity) was strongly correlated and predictive of narcissism and machiavellianism ($r = .71, \beta = .52$), factor 2 (antisocial) was correlated and predictive of impulsiveness and antisociality ($r = .67, \beta = .58$), and factor 3 (callous) was correlated and predictive of cold heartedness and low empathy ($r = .34, \beta = .34$). Encouragingly, these results were on a diverse sample (male and female college students and male prisoners) and no differences were noted between samples (Sellbom, 2011).

However, concerns have been noted regarding the ability of the LSPS factor 1 scale to differentiate itself from factor 2 and adequately capture primary psychopathy characteristics. It has been theorised that the secondary factor of psychopathy (as assessed by the PCL-R) is more strongly associated with measures of negative emotionality⁹. As such, it is expected that the LSPS factor 2 would also bear this relationship out (Brinkley et al., 2001; Levenson et al., 1995). However, this has

⁹ A constellation of emotional experiences such as anxiety, hostility and mistrust

not always been the case and results are discrepant between studies. In the initial validation study, both scales were related to stress reaction, with the secondary scale ($r = .41, p < .001$) more strongly related compared than the primary scale ($r = .09, p < .05$; Levenson et al., 1995). In samples of college students, as would be predicted, anxiety, negative emotionality and neuroticism was related to factor 2 but not to factor 1 (Lynam et al., 1999; McHoskey, Worzel, & Szyarto, 1998; Miller, Gaughan, & Pryor, 2008). Using the three-factor model in a samples of male and females offenders, the modified Antisocial factor 2 was more strongly related to a number of mental health variables and emotional distress compared to factor 1 and 3 scales (Brinkley et al., 2008; Sellbom, 2011). However, contrary to theoretical predictions, both the primary and secondary factors were positively related to a measure of anxiety in another sample of college students ($r = .29, .55$, respectively; Falkenbach et al., 2007) and in a sample of male offenders ($r = .41, p < .001, r = .67, p < .001$, respectively; Epstein et al., 2006).

As the PCL-R is considered to be the most reliable and valid measure of psychopathy, it provides a useful benchmark to validate self-report psychopathy measures. The LSPS has demonstrated a modest and mixed relationship in terms of its concurrent validity with the PCL-R. For example, in a male and female prisoner populations (Book, Quinsey, & Langford, 2007; Brinkley et al., 2001; Poythress et al., 2010), PCL-R and LSPS total scores were correlated ($0.30 - 0.35, p < .01$), as were factor 2 scores ($0.29 - 0.40, p < .001$), however factor 1 scores were only related in two studies ($.23 - .30, p < .01$; Brinkley et al., 2001; Poythress et al., 2010) and not in the other (Book et al., 2007). Furthermore, while the PCL-R total was significantly correlated with both violent and non-violent criminal activity, the LSPS total score, and factors 1 and 2 were only correlated with violent crime ($0.24, p < .001; 0.25, p < .001; 0.14, p < .001$, respectively) and not non-violent offending (Brinkley et al., 2001). Thus indicating the despite correlations with each other, the LSPS is not performing as similarly to the PCL-R as would be expected.

Concerns about discriminant validity for LSPS factor 1 are more apparent when compared to the PCL-R. In a mixed offender sample (Poythress et al., 2010); the discriminant validity of LSPS factor 1 was called into question as it was significantly more related to PCL-R Factor 2, than PCL-R Factor 1. Furthermore, in this same study it was also noted that external correlates with PCL-R Factor 2 were more similar to correlates of the LSPS primary scale than with the LSPS secondary scale

(Poythress et al., 2010). This suggests that factors from each of the tools are tapping into different constructs then would be expected (Book et al., 2007). Given the extensive validation of the PCL-R, these concerns likely reflect that factor 1 on the LSPS is not reflecting core primary psychopathic traits, without contamination from antisocial items associated with factor 2.

In attempts to move beyond validation of the LSPS with self-report inventories, validation with performance tasks such go/no-go tasks has been explored. For instance, previous research has demonstrated that psychopathic individuals can be discriminated from non-psychopathic individuals by their performance on passive-avoidance tasks, with psychopaths being more likely to make commission errors and be unable to modulate their responses in the face of negative feedback (Rogers, 2006; Lynam et al., 1999; Brinkley et al., 2001; Sellbom, 2011). College students with high LSPS scores demonstrated more errors in commission (less able to inhibit their responses) than individuals who had low scores on the LSPS, even in the face of punishment (Lynam et al., 1999). The authors noted that the relationship between the LSPS and task errors was similar to that recorded in previous studies using the same tasks and the PCL-R (Lynam et al., 1999). Similar results were also noted in a study with male prisoners, in which high scorers on the LSPS performed the same as high scores on the PCL-R, committing the same type of errors of commission as opposed to those deemed as low psychopathic (Brinkley et al., 2001). This may suggest that both the PCL-R and LSPS are measuring a similar construct that impacts on performance on the go/no-go test, which provides additional validation for the LSPS.

Appropriate Norms and Varying Populations

The LSPS was originally developed on male and female American college students and has since been validated on both male and female American prisoners (Brinkley et al., 2008; Brinkley et al., 2001). To date, all known samples and reported norms have been on North American samples. Further validation is needed to develop norms for other countries. This may be especially prudent when the discrepancy between mean scores and cut-off scores between North American and United Kingdom are considered for the PCL-R, as it appears differences exist between the two in regards to

how psychopathic traits are expressed (Hare, Clark, Grann & Thornton, 2000; Cooke, Christie, Hart & Clark, 2005). It is possible similar differences may exist for LSPS scores.

Discrepancies have been noted in regards to ethnic differences between Caucasian and African-American offending samples in both internal consistency and diagnostic reliability, with the scale appearing to perform better in the Caucasian sample (Brinkley et al., 2001). It was also noted that race may play a role in the factor structure of the tool, with the two-factor model appearing to fit better in Caucasian prisoners as opposed to African-American prisoners (Brinkley, 2001). Convergent validity is also discrepant, where the LSPS was more strongly correlated with the PCL-R in a Caucasian sample, compared to an African-American sample (Brinkley et al., 2001). These differences warrant further investigation and may indicate that the expression of psychopathy differs between ethnic groups.

Some discrepancies have also been noted between genders, but this has not been consistent. No effect of gender was found on external correlates in prisoners (Epstein, Poythress, & Brandon, 2006) and college students (Levenson et al., 1995; Sellbom, 2011). However, a cross validation study of female prisoners, suggested that the two-factor model was a poor fit in this sample, instead producing a three-factor model (Brinkley et al., 2008). An examination of gender-moderated test bias of the LSPS was conducted by Marion and Sellbom (2011) on college students (N=403) to explore the differential prediction between genders of theoretically relevant measures. Intercept biases, explored using a step-down hierarchical multiple regression procedure, indicated a tendency to over and under predict certain constructs depending on gender (Marion & Sellbom, 2011). LSPS total scores, as well as the primary and secondary scores tended to over-predict men on measures of aggression, antisocial behaviour and impulsivity, and under-predict these same scores for women. The primary scale over predicted women on measures of empathy, whereas the secondary scale over-predicted women on sensation-seeking. While it is noted by the authors that the effect sizes of these biases are small and may be accounted for by genuine gender differences in external correlates, it may also indicate that the same score on the LSPS for men and women are capturing different aspects of psychopathic personality traits (Marion & Sellbom, 2011).

Furthermore, concerns regarding adjusting norms may also have to be explored in females, as results have consistently shown gender differences in levels of psychopathic traits according to the LSPS, as well as discriminant validity between genders (Levenson et al., 1995; Marion & Sellbom, 2011; Miller et al., 2008). This parallels recommendations in the research regarding the PCL-R that gender specific norms may be warranted, including a re-examination of how psychopathy is uniquely expressed in females (e.g. Cale & Lilienfeld, 2002; Forouzan & Cooke, 2005).

Problems, criticisms and limitations

In addition to the concerns highlighted above, a number of more general criticisms have been levied against self-report psychopathy scales. It is widely thought that self-report scales will be easily manipulated by psychopaths, especially those in institutions who are used to skewing test results (Levenson et al., 1995). The very nature of a psychopathy sees such individuals frequently lying for a variety of reasons. As such, the simple nature of the LSPS may be easily manipulated as it does not possess sophisticated response-style indicators and validity scales. Lilienfeld and Fowler (2006) also noted that even knowing that psychopaths lie on self-report tests does not necessarily help, as the nature of their lying may depend on the context they are in. To counteract a “fake good” profile, attempts have been made with the LSPS to phrase many of the items in such a way that disapproval is not automatically indicated by endorsing an item (e.g., “people who are stupid enough to get ripped off, usually deserve it”; Levenson et al., 1995).

Another difficulty with psychopathy self-report measures is that psychopaths often lack insight into the nature of their psychological difficulties (Lilienfeld & Fowler, 2006). Therefore, it may be unproductive to ask them to reflect upon their own functioning, when they may fail to perceive their own difficulties. Also, it can also be problematic to ask an individual who has never experienced an emotion such as empathy, to comment on their lack of it (Lilienfeld & Fowler, 2006). However, this criticism may be less applicable to the LSPS as it makes no attempt to ask specific questions about emotions, instead asking the individual to agree with a statement that is meant to

indicate the presence (or lack of) an emotion (for instance, the item “success is based on survival of the fittest, I am not concerned about the losers” tapping into empathy).

Self-report measures of psychopathy have also been criticised for their over-reliance on negative emotionality (Lilienfeld & Fowler, 2006). The inclusion of items that tap into this construct can reduce its discriminant validity because it can be common in a variety of conditions such as anxiety and mood disorders which are linked to antisocial behaviour (Lilienfeld & Fowler, 2006). As mentioned previously, concerns have been raised regarding the LSPS’s factor 1 scale (e.g., Lilienfeld & Fowler, 2006) and its ability to tap into the primary psychopathy construct. It is thought that some of this difficulty may arise from over saturation with negative emotionality (Sellbom, 2011).

Conclusions

It is evident that the Levenson Self-Report Psychopathy scale meets a variety of scientific criteria to support its function as a scale, however there remains area of concern that need to be taken into consideration when interpreting its results, including noting limitations regarding internal consistency, construct validity and discriminant validity. On a more positive note, the LSPS has demonstrated good test-retest reliability and fair diagnostic agreement with the PCL-R. Furthermore, the LSPS has been shown to have links a variety of theoretically significant measures related to psychopathy, however this is not consistent across factors. Additionally, research has explored the construct validity of the item and demonstrated a better fitting three factor model, however it is unclear if this model is recommended by the scale developers and should be utilised in place of the original scale design.

The LSPS has an acceptable research base across a range of populations (college students, male and female prisoners). It has also been suggested that because the self-report scale does not include any measures of criminality, it may therefore be better suited to female offenders, who normally display lower levels of antisocial behaviour in comparison to males (Brinkley et al., 2008). However, despite this, the true efficacy of this tool in a female population appears questionable, including concerns regarding the most appropriate factor structure to use and the differential endorsement of items across genders. Furthermore, to date this tool is not validated on inpatient

populations. Future research with this scale should aim to validate it on populations in the United Kingdom, to provide UK norms and validate it on populations outside North America. Further research is also needed to clarify some potential gender differences regarding factor structure and classification of psychopathy. These recommendations fall in line with suggestions made more widely regarding psychopathy and gender differences.

In addition to gender concerns, several questions still exist that may have influenced the results presented in chapter three. Particular questions are raised regarding the validity of the primary psychopathy scale and its ability to tap into the core interpersonal and affective traits associated with psychopathy, as well as the most appropriate factor structure to use. Furthermore, the reliability of factor 2 is questionable which further calls into question the usefulness of the LSPS as a measure of psychopathy. While the LSPS may have basic appeal in terms of a brief measure to assess psychopathic traits, it appears to only be partially equipped to adequately complete the task. As such, utilising the LSPS should be done with caveats in place regarding the limitations of its reliability and validity.

CHAPTER FIVE: DISCUSSION

“Therefore, meaningful differentials between male and female crime must be looked for, not in any appreciable and validly demonstrable difference in crime volume, but in the ways in which women commit their crimes and in the causes of their criminal behaviour...”(p. 161, Pollak, 1950).

This thesis aimed to explore the position that female crime presents a uniquely gendered experience that needs to be considered separately from male offending when contemplating risk assessment and rehabilitation approaches. As has been reviewed throughout this thesis, the relevance of competing orientations has been widely examined by empirical research, with no clear consensus having yet been reached. It is evident from the results of this thesis that females who engage in crime do present with a range of psychosocial difficulties that are distinctive from those seen in the majority of male offenders. However, these differences do not necessarily equate to variations in predictive validity, with gender neutral factors appearing to be effective in determining risk for reoffending. Notably however, it may be the expression of these risk factors where the gender differences may lie, for instance as seen with the manifestation of personality disorders.

Chapter one briefly outlined the gender neutral versus gender specific debate, including reviewing some of the prevalent approaches that have been used to understand female crime over the past one hundred years. The chapter also provided an overview of the prevailing approach to treating and assessing male offenders (the GPCSL model), which is the most commonly criticised approach by gender specific proponents, despite its strong research base.

The systematic review in chapter two demonstrated that research findings continue to present conflicting evidence regarding the commonality of risk factors for offending in females. The systematic review indicated that while gender neutral approaches (e.g., psychopathy, traditional risk assessment tools) appear to be adequate in predicting offending in females, they do not appear to fully reflect the complex picture evident in many female offenders. Conversely, the review also indicated that while gender specific factors (e.g., history of victimisation) appeared at a greater degree in female offenders, they did not consistently predict offending. As such, the role of addressing these factors as criminogenic needs remains unclear. In addition to the examination of risk factors associated with reoffending, the systematic review also pointed towards the lack of research regarding protective

factors in female offenders. This was discouraging considering that the review noted small but significant effects of protective factors upon recidivism. In addition, the lack of focus on this area contradicts the noted importance of including an examination of strengths in current approaches to risk assessment and treatment with offenders (de Vogel, de Vries Robbé, de Ruiter, & Bouman, 2011; Desmarais, Nicholls, Wilson, & Brink, 2012; Ward & Maruna, 2007; Ward, Rose, & Willis, 2012). Methodological limitations of many of the reviewed studies also indicated that research with female offenders is often fraught with difficulties regarding small sample sizes, as well as excluding a simultaneous examination of both gender neutral and gender specific risks for empirical examination. Due to these small sample sizes, differences between specific offending groups (e.g., violent, sexual) were difficult to examine.

Building upon some of these limitations, the research project presented in chapter three examined the role of both risk and protective factors (factors drawn from both the gender neutral and gender specific fields) on subtypes of violence in a population of male and female inpatients. Results indicated that while gender differences did exist in subtypes of violence (instrumental versus reactive), these were within the broader context of overarching similarities between genders. For instance, both male and female inpatients who were classified as instrumentally violent exhibited psychosocial histories characterised by increased offending, abuse histories, and mental health and substance abuse problems. However, the focus of the picture was slightly different between men and women, with the instrumentally violent women being characterised by more dysfunctional histories, including increased victimisation, histories of self-harm and suicidal attempts, and mood disorders. This was in contrast to their male counterparts in the study who demonstrated a more 'traditional' antisocial orientation, with increased substance abuse, severity of violence, a history of childhood physical abuse and mental health problems such as psychosis. However, regardless of gender, the presence of instrumental violence across genders was most often predicted by a diagnosis of personality disorder. Again though, this personality disorder was varied between genders, with males more often being diagnosed with antisocial personality, and women more often displaying borderline personality. Results from the research study suggested that the relevance of risk factors in

understanding gender differences in crime cannot simply be reduced to an endorsement of either gender specific or gender neutral factors, as the picture for both genders is more complex than this and requires a broader acknowledgement of variations between all offenders.

Given the importance of personality disorder in understanding differences in violence subtypes including psychopathy, the research project also included a measure to assess the presence of self-reported traits of psychopathy, using the Levenson Self-Report Psychopathy Scale (LSPS, Levenson et al., 1995). Chapter four presented a critical review of this measure in order to be able to better evaluate results from the research project. The critique demonstrated some efficacy of utilising the LSPS, however it presented reliability and validity values which ranged from questionable to acceptable. Despite some of its success in other research, there has been much debate on the validity of self-report psychopathy measures. These concerns, in addition to a lack of validation on a female inpatient population serve to compound reservations regarding the use of this tool as a measure of psychopathic traits with this group. This lack of clarity dovetails with a wider debate in the literature regarding psychopathy in women, including the potential for differences in the expression and therefore assessment of psychopathy in women. Due to some of the expressed limitations of utilising the LSPS, the role of psychopathy as it pertains to the research project is unclear and it is recommended that the tool should be used with caution.

Contribution of the thesis to the current literature

Conclusions drawn from this thesis reflect the wider debate in the literature regarding female offending as answers regarding origins of female crime do not fall neatly into one theory or the other. There are evident similarities and differences to male offenders which demonstrate that both gender neutral and gender specific factors are relevant, depending on the way the risk factor is conceptualised. The time has come to abandon the gender neutral versus gender responsive debate, instead focusing on the appropriateness of incorporating the two into a more cohesive understanding of female offending. It appears that in the search for a single theory of crime, unproductive debates have arisen regarding whether or not gender neutral or gender responsive factors are the most

appropriate predictors of future offending, when it can be acknowledged that a variety of factors may be relevant for certain subgroups of offenders (Brennan et al., 2012).

Returning to the theories presented in chapter one, we can now examine how results from this thesis fit into these models of understanding. Figure 2 presents the General Personality / Cognitive Social Learning model (adapted from Andrews & Bonta, 2010, p. 137) which was reviewed in detail in chapter one. Significant results from this thesis (both gender neutral and gender specific factors, indicated by a check mark where thesis results map onto the model) are incorporated into the figure in order to place the results of this thesis into a theoretical context. Notably, the model explicitly dictates that there are multiple paths any individual may take within this framework to engage in criminal activity (Andrews & Bonta, 2010), thus providing a degree of flexibility in understanding potentially unique and, if necessary, gendered pathways to offending. According to this model, distal factors include an individual's age and gender, ethnicity, and other social, political and cultural influences. These distal factors, together with biological vulnerabilities, shape the individual as they move towards criminal behaviour. Thus, although the model leaves specific routes to offending open, it suggests a hierarchy of factors in the extent of their influence on criminal behaviour.

It is evident that the majority of results from both the systematic review and empirical research project can be understood within the context of the more immediate risk factors of this model (Figure 2; with the exception of the role of antisocial associates and partner influences). History of offending was a factor which was consistently demonstrated to be connected to offending throughout the thesis, including demonstrating a link to instrumental violence in females (defined by criminal versatility). Notably, this factor was also evident in male offenders, just to a greater degree. Gender variations were also noted for this factor, with criminal versatility only being predictive of instrumental violence in males, and not in females. Similarly, while instrumentally violent females demonstrated higher levels of callousness, it was this variable that was predictive of instrumental violence in males, again highlighting that gender differences in the presence of risk factors do not necessarily indicate predictive validity.

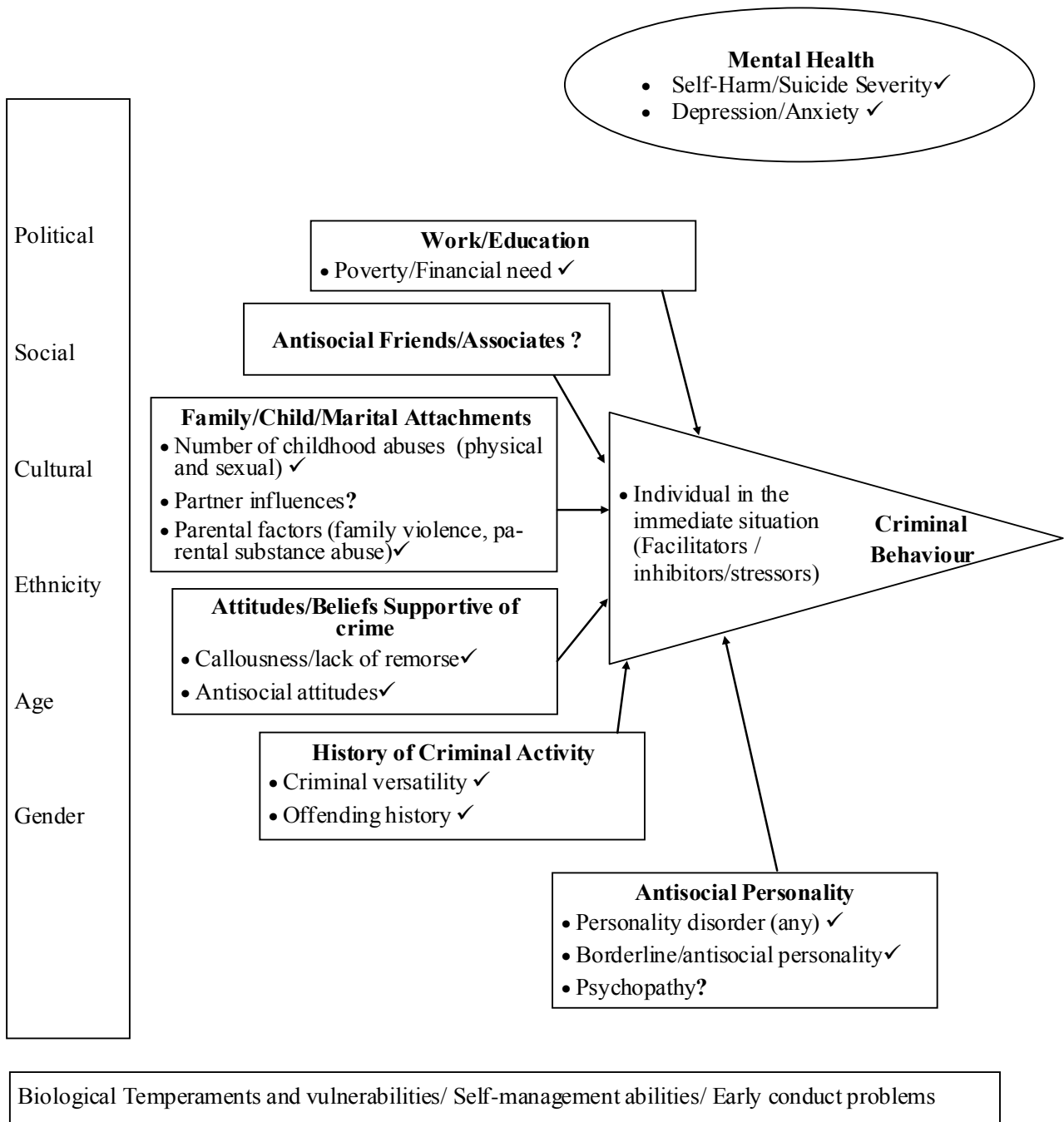


Figure 2. Thesis results incorporated into the General Personality and Cognitive Social Learning Model

Returning to the framework of the GPCSL model, it is unclear where victimisation experiences may fit in terms of understanding female offending, as this item was strongly associated with instrumental violence in the female inpatient sample. However, the results from the systematic review regarding this variable were highly divisive between studies, calling into question its role as a predictor variable, especially when gender neutral factors were first considered (e.g., criminal history). Importantly, victimisation experiences are not explicitly incorporated under the family factor

in the above model (Andrews & Bonta, 2010) but it is arguable that the quality of parental/family attachments which are considered under this factor are influenced by historical abuse. Thus, the potentially complex and indirect relationship of victimisation experiences to offending is emphasised. Prior research has demonstrated links between the experiences of childhood victimisation and borderline personality disorder (Leichsenring, Leibing, Kruse, New, & Leweke, 2011; Lieb, Zanarini, Schmahl, Linehan, & Bohus, 2004; Zanarini et al., 2002) and a similar relationship has been noted for childhood maltreatment experiences and the development of antisocial personality disorder (Wilson, Stover, & Berkowitz, 2009). As such, the influence of traumatic childhood experiences may be through the development of personality disorders, which is relevant for both genders, albeit with varying pathways as to how the impact of these experiences manifest themselves. This was reflected in chapter three, where instrumental violence in both males and females demonstrated links to a range of childhood abuse experiences and family dysfunction, indicating a role for this factor in both genders, depending on the assessed outcome.

According to the GPCSL model, the presence of an antisocial personality pattern is broadly defined, indicated by impulsivity, aggressiveness/hostility, disregard for others, anger management difficulties including generally weak self-regulation skills and poor problem solving skills. Thus, a range of personality disorders could potentially fulfil this criteria dependent upon the expression of the personality type in an individual. Presence of an antisocial personality pattern is central to the GPCSL model and, importantly, personality disorder was consistently indicated by results in this thesis (by the systematic review and research project) for both male and female offenders. Despite similarities between genders regarding the factors' presence, it also illustrates gender differences when the expression of the item is considered. This varying manifestation is expected given the potential overlap of cluster B disorders (Warren & Burnette, 2012), including the possibility that BPD and ASPD represent gendered expressions of the same personality disorder (Beauchaine et al., 2009; Paris, 1997). These personality profiles are similarly characterised by impulsivity, emotional instability and difficulty empathising due to an egocentric orientation when interacting with others, whose varied expression is likely driven by gender differences in underlying personality traits (Paris,

1997). Furthermore, both disorders are associated with increase rates of self-harm behaviour and a history of abuse/trauma as a precursor to the development of the disorder (Beauchaine et al., 2009; Paris, 1997). As such, their links to crime and offending behaviour can be conceptualised to be similar, albeit with a varying psychopathological expression.

While personality disorder is clearly accounted for in the GPCSL model, it is unclear where mental health difficulties, such as self-harm/suicidal behaviour and depression/anxiety should be incorporated, as the model does not explicitly incorporate mental health factors, instead viewing it as a “less promising” criminogenic need due to its inconsistent links with offending (Andrews & Bonta, 2010, p. 60). While mental health factors were significantly associated with instrumental violence in females, it was not predictive of a violence subtype. Furthermore, the systematic review yielded inconsistent results regarding this factor. It can be argued that factors such as self-harm behaviour and depression/anxiety are manifestations of a personality disorder in females, as such are not causative factors to their offending. This is reflected by research which has demonstrated that BPD and mood disorders are frequently co-occurring (Leichsenring et al., 2011; Lieb et al., 2004). Given the apparent links between self-harm behaviour and instrumental violence in this sample of personality disorder females, self-harm behaviour may be indicative of a repeated pattern of utilising violence (directed at self or others) to achieve an end goal. Unfortunately, motivation and context for self-harm behaviours were not considered, as such the links between self-harming behaviours and instrumental violence can only be hypothesised. Nonetheless, it is possible that self-harming and suicidal behaviour exemplifies the presence of a highly dysfunctional personality pattern that can be more readily linked to a generally antisocial orientation characterised by impulsivity and disregard for others.

Research has increasingly recognised the complex links between personality disorders and serious offending (Davison & Janca, 2012; Logan & Johnstone, 2010) whose centrality to understanding crime, including female crime was also demonstrated by this thesis. Given the lack of acknowledgement regarding the role of personality disorder in the feminist argument, it is clear that their explanation of offending is incomplete. Regardless of gender, an individual’s unique presentation should be considered when assessing risk. However, accommodating responsivity issues

does not mean abandoning empirically demonstrated links to offending. Rather, by recognising the importance of responsivity and incorporating it by utilising formulation, an individualised approach to assessment is encouraged. Thus, the complexity evident in female offending is accounted for while adhering to an empirically supported theory such as the GPCSL model (Andrews & Bonta, 2010; Byrne & Howells, 2002; Hubbard & Matthews, 2008; Logan & Johnstone, 2010; Ogloff & Davis, 2004). In this vein, further research regarding female crime should be encouraged to build upon the principles of responsivity, as well as the expression of criminogenic needs in females. It is paramount that this includes an examination of how the representation of personality disorders differs between genders and how they are functionally linked to criminal behaviour.

Rather than focusing on what category factors fall into (e.g., gender neutral or gender responsive), a more productive approach would be to examine the expression of gender neutral factors within various populations of female offenders (e.g., prisoners, inpatients). Relinquishing the debate does not have to negate the importance of a gender responsive approach to female offending. As has been illustrated in the research project in chapter three, as well as in other research (Brennan et al., 2012; Hubbard & Pratt, 2002; Salisbury & Van Voorhis, 2009; Van Voorhis et al., 2010), there is a seeming additive value of combining factors which provide the most accurate understanding of female offending. However, the importance of considering a range of factors may not be enough, with the context of factors also needing to be taken into account. For example, in a longitudinal study of over 1500 individuals in Chicago, childhood maltreatment was significantly associated with violent offending in adulthood, regardless of gender (Topitzes et al., 2012). However, differences existed in factors which mediated this maltreatment – violence link, with the impact in males being fully mediated by environmental instability, externalising behaviours and peer social skills. In contrast, in females the relationship between violence and childhood maltreatment was accounted for by the presence of internalising behaviours in adolescence (Topitzes et al., 2012). Thus, it is the context and interaction of supposed risk factors that need to be considered when assessing gender differences in crime (Hannah-Moffat, 2009; Van Voorhis et al., 2010) and how these factors feed into an individual's pathway to offending.

Limitations

There are several limitations regarding this thesis that need to be acknowledged. While this thesis presents a wider examination of two female offending groups, a review of prisoner samples in chapter two and an inpatient sample in chapter three, inherent differences between the two may limit the comparability of conclusions drawn between chapters. Further limitations regarding sample selection can also be identified within chapters two and three. In order to provide a more concentrated examination of gender specific factors, the systematic review only included studies which utilised female samples. Indeed, methodological rigour is best adhered to by including sample or comparison groups when drawing conclusions regarding differences (Field, 2005). However, this was thought necessary to ensure studies which included gender responsive factors were systematically examined, as such, it is difficult to know if observed effects of gender specific factors in the systematic review represent clear differences between genders, or mere anomalies of the sample being measured. Additionally, other offending samples were eliminated such as adolescent offenders and mentally ill offenders, potentially eliminating important results that may provide clues to understanding female offending. Similarly, while the project in chapter three included a male comparison group, the lack of a non-violent offending group or a non-offending sample, inhibits the generalisability of conclusions drawn. Also, the systematic review did not include any unpublished studies (and only two government documents). This may have introduced a publication bias in which studies that demonstrate positive results are usually published over those that confirm null hypotheses (Song et al., 2010), thus skewing conclusions drawn in the systematic review. More articles may have been identified by hand searching relevant journals or a sample of grey literature may have been included by contacting key researchers in the field.

The research project in chapter three utilised a quasi-experimental method, potentially introducing confounds which may influence the results of the study. In addition to concerns regarding the dichotomous violence classification (discussed in chapter three), individual factors such as mental health (given the inpatient sample) and biological influences of gender, or external variables such as the hospital from which the (male) patients were sampled from may represent confounding factors

which are not accounted for in this study. Furthermore, data collection relied on archival sources which can lead to questions regarding the overall quality of data collected due to incomplete or missing documentation, recording errors in the original documents, or differences in recording practices of institutional misconducts. Due to the inconsistency between files, numbers for each variable varied, sometimes even precluding a variable's inclusion in inferential analyses due to small cell sizes. However, appropriate statistical techniques were used to address small cell sizes whenever possible and a rigorous approach to data collection was utilised to provide a consistent standard of data collection and prevent experimenter bias. In addition to small cell sizes, the overall sample tended towards the small size which prevented the possibility of more complex analysis to understand mediating and indirect relationships between risk factors. This seems especially important given indications throughout this thesis, and in the wider literature, that a complex relationship exists between risk factors which may be especially relevant for female offenders. Small numbers was also especially notable with the questionnaire portion of the study, which may have influenced non-significant results. Concerns regarding the validity of the LSPS to accurately identify primary psychopathy traits as those distinct from secondary psychopathy may have also muddied the significance of this in relation to violence subtypes.

Given the results of self-harm demonstrating an unexpected relationship with instrumental violence, or evidence from research that the role of child abuse in relation to offending is likely multifaceted, it is evident that data collected in this area needed to include a greater depth of information including context and motivation for certain behaviours, as well as a consideration of the number or severity of traumatic experiences. It is acknowledged that this is a shortcoming of data collection in chapter three, as well as the systematic review conclusions. Relying on a dichotomous classification for risk factors not only loses variability, but neglects to consider more complicated interactions. This includes ignoring a more temporal consideration of risk factors, again highlighting the need for a path analytic approach to understand this issue.

Conclusions and Future Directions

Gender neutral risk assessments have been criticised because they have relied on conclusions based upon research with male offenders (Blanchette, 2004). It has been questioned whether present day ‘traditional’ risk factors would still be in use if exploration of crime had commenced by utilising samples of female offenders, rather than men (Van Voorhis et al., 2010). However, it is clear that despite describing gender specific approaches as a theoretical approach (e.g., Morash, 2009) there is evidence to suggest it is more tentative in nature. The exact role of gender in the theory is unclear (Hannah-Moffat, 2009), as it could be understood to exert influence upon risk factors in multiple ways (Van Voorhis et al., 2010). Despite this uncertainty, proponents would argue that gender specific factors should be reflected in risk assessments and correctional programs (Salisbury et al., 2009; Taylor & Blanchette, 2009; Van Voorhis et al., 2010). However, without a theoretical underpinning to understand how these factors manifest themselves across genders, there is a risk of “dust bowl empiricism” in which factors are only included due to their relationship with offending (Bonta, 1997) and as such are not fully understood how they interact with one another. Going forward with research which explores a gendered approach to offending, it will be important that an empirically grounded, comprehensive theory is utilised to tie together apparent gender differences in the experiences of offenders.

It is apparent that research must continue to come together regarding the most effective way in which to understand, assesses and ultimately treat females who have offended (Hubbard & Matthews, 2008). This may take place through a broad approach, such as understanding how the expression of standard risk factors may occur within female offenders. More specifically, future explorations of the aetiologies of female crime (and more precisely, violence) may be best built upon current research which examines the phenotypic expression of personality disorders and psychopathy across genders. A focus on individual differences, in both genders, that influence the expression of maladaptive and dysfunctional behaviours is the important next step in leaving the debate behind.

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* Denotes study used in systematic review

APPENDICES

Appendix A: Protocol for Systematic Review

Predicting Risk of Recidivism in Female Offenders

A. Search Strategy

Databases: PsycInfo, Medline, Embase , Web of Science

Review all reference lists in found studies

Grey literature – review reference lists, government literature (UK, Canada, US)

Books excluded due to difficulty accessing all chapters and constraints of time and cost

Search Terms

1. Keyword female: female* OR women OR woman
2. Key word offender: offend* OR criminal* OR delinquent* OR inmate* OR prisoner* OR antisocial* OR detainee* OR convic* OR incarcerat* OR correctional OR probation* OR secure
3. risk OR “risk factor*” OR “risk assessment*” OR “criminogenic need*”
4. re\$offend* OR recidiv* OR relapse OR reconvict*
5. 1 AND 2 AND 3 AND 4

B. Inclusion and Exclusion Criteria

Population – Adult female offenders (ages 18+)

Exclude studies with male participants, studies only examining female offenders with LD, female adolescent offenders, specific subsets of offenders (e.g., arson, domestic violence)

Intervention – Any intervention, including no treatment

No exclusions based upon intervention , unless study only validates a specific program with no risk factors considered

Comparator – Adult female offenders only, non-offending comparison okay if sample is female

Exclude studies with male comparisons

Outcome – Reoffending/reconviction/recidivism measured by official records, self-report, archival

Study type - Any study design except single case studies or qualitative studies

Additional Inclusion: Published between years 1995 – 2013, examination of any risk factors, including scores on risk assessment measures (HCR-20, PCL-R, SVR – 20), prison or community setting

Additional Exclusion: Inpatient mental health settings, non-English language studies, dissertation/thesis

Appendix B. PsycINFO search using OvidSP

Search Journals Books My Workspace

▼ Search History (8 searches) (Click to close) View Saved

<input type="checkbox"/>	# ▲	Searches	Results	Search Type	Actions
<input type="checkbox"/>	5	(offend* or criminal* or delinquent* or inmate* or prisoner* or antisocial* or detainee* or convic* or incarcerat* or correctional or probation* or secure).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]	78141	Advanced	Display Delete Save More >
<input type="checkbox"/>	6	(risk or risk factor* or risk assessment* or criminogenic need*).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]	198469	Advanced	Display More >
<input type="checkbox"/>	7	(re\$offend* or recidiv* or relapse or reconvic*).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]	20830	Advanced	Display More >
<input type="checkbox"/>	8	4 and 5 and 6 and 7	273	Advanced	Display More >

Remove Selected Save Selected | Combine selections with:

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1 Resource selected | [Hide](#) | [Change](#)

PsycINFO 1987 to May Week 3 2013

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- Search terms used:

- antisocial*
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- correctional
- criminal*
- criminogenic
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- incarcerat*
- inmate*
- need*
- offend*
- prisoner*
- probation*
- re\$offend*
- recidiv*
- reconvic*
- relapse
- risk
- secure
- woman
- women

Search Returned:
273 results

Sort By:

1. "Applicability of MEGA to sexually abusive youth with low intellectual functioning": Corrigendum.

Miccio-Fonseca, L. C; Rasmussen, Lucinda A.

Journal of Mental Health Research in Intellectual Disabilities. Vol.6(2), Apr 2013, pp. 179. [Journal; Peer Reviewed Journal]

Year of Publication
2013

▼ View Abstract

AB Reports an error in "Applicability of MEGA to sexually abusive youth with low intellectual functioning" by L. C. Miccio-Fonseca and Lucinda A. Rasmussen (*Journal of Mental Health Research in Intellectual Disabilities*, 2013[Jan], Vol 6[1], 42-59). In the original article, some terminology was presented incorrectly. The corrections are presents in the erratum. (The following abstract of the original article appeared in record 2012-31567-004). The study explored the predictive validity of Multiplex Empirically Guided Inventory of Ecological Aggregates for Assessing Sexually Abusive Children and Adolescents (Ages 4 to 19) (MEGA; Miccio-Fonseca 2006b, a comprehensive developmentally sensitive **risk assessment** outcome tool. MEGA assesses **risk** for coarse sexual improprieties and/or sexually abusive behavior in male and **female** youth ages 4 to 19 years (adjudicated and nonadjudicated), including youth with low (i.e., borderline) intellectual functioning. MEGA has 4 distinct **risk** scales with robust internal consistency reliability on cross-validation: **Risk** Scale (0.81), Protective Scale (0.78), Estrangement Scale (0.79), and Persistent Sexual Deviancy Scale (0.74). Sexual **recidivism** in cross-validation (N = 1,056) was 8.4%, defined as sexually related **probation** or parole violation (formal or informal). ROC analysis for **Risk** Scale demonstrated MEGA has good predictive validity (AUC = .71, 95% CI of .62-.80, p < .001). Youth with low intellectual functioning scored significantly higher on the **Risk** Scale and Persistent Sexual Deviancy Scale, highlighting the importance of accurately assessing these youth. (PsycINFO Database Record (c) 2013 APA, all rights reserved)

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Appendix C. MEDLINE search using OvidSP



OvidSP

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<input type="checkbox"/>	6	(risk or risk factor* or risk assessment* or criminogenic need*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]	1375968	Advanced	Display Delete Save More >>
<input type="checkbox"/>	7	(reSoffend* or recidiv* or relapse or reconvict*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]	79319	Advanced	Display Delete More >>
<input type="checkbox"/>	8	4 and 5 and 6 and 7	390	Advanced	Display More >>

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1. Childhood maltreatment and conduct disorder: independent predictors of criminal outcomes in ADHD youth.

De Sanctis VA, Nomura Y, Newcorn JH, Halperin JM.
Child Abuse & Neglect. 36(11-12):782-9, 2012 Nov-Dec.
 [Journal Article. Research Support, N.I.H., Extramural]
 UI: 23146580

Authors Full Name
 De Sanctis, Virginia A. Nomura, Yoko. Newcorn, Jeffrey H. Halperin, Jeffrey M.

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AB OBJECTIVE: Children with attention-deficit/hyperactivity disorder (ADHD) are at heightened risk for maltreatment in childhood and criminality as they enter into adolescence and early adulthood. Here, we investigated the effect of moderate to severe childhood maltreatment on later criminality among adolescents/young adults diagnosed with ADHD in childhood while accounting for the contributions of other known risk factors such as early conduct disorder (CD). METHODS: Eighty-eight participants from a longitudinal study of children diagnosed with ADHD and screened for comorbid disorders at age 7-11 years were assessed for maltreatment histories at the time of the 10-year adolescent follow-up. Detailed juvenile and adult criminal records were obtained from the New York State Division of Criminal Justice Services approximately 3-years after commencement of the follow-up study. We used regression analyses to determine predictors of adolescent/young adult criminal behavior. RESULTS: Moderate to severe childhood maltreatment increased the risk of adolescent/young adult arrest over and above the risk associated with childhood CD, while both childhood maltreatment and childhood CD significantly increased the risk of recidivism. ADHD youth classified as maltreated were three and a half times more likely to be arrested when compared to ADHD youth without a maltreatment classification. CONCLUSION: We established maltreatment as a risk factor for criminality in ADHD youth and demonstrated that this relationship was independent of the contributions of CD, and established risk factor for antisocial behavior in this population. The findings highlight the need for maltreatment screening in children with ADHD in order to identify those at heightened risk for criminal activity, and target treatment to improve outcome in this high-risk group of children. Published by Elsevier Ltd.

- Abstract Reference
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You searched:
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 - Search terms used:
 antisocial*
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Search Returned:
 390 results

Sort By:

Appendix E. Web of Science Search

WEB OF KNOWLEDGESM | DISCOVERY STARTS HERE



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Web of Science®

Results Topic=(female* OR women OR woman) AND Topic=(offend* OR criminal* OR delinquent* OR inmate* OR prisoner* OR antisocial* OR detainee* OR convict* OR incarcerated* OR correctional OR probation* OR secure) AND Topic=(risk OR "risk factor*" OR "risk assessment*" OR "criminogenic need*") AND Topic=(re\$offend* OR recidiv* OR relapse OR reconvict*)
 Timespan=1995-2013. Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH.

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Results: **224** Page of 23 [Go](#) Sort by: [Publication Date -- newest to oldest](#)

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 PSYCHIATRY (41)
 LAW (24)
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- Title: **The Average Predictive Validity of Intimate Partner Violence Risk Assessment Instruments**
 Author(s): Messing, Jill Theresa; Thaller, Jonel
 Source: JOURNAL OF INTERPERSONAL VIOLENCE Volume: 28 Issue: 7 Pages: 1537-1558 DOI: 10.1177/0886260512468250 Published: MAY 2013
 Times Cited: 0 (from Web of Science)
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- Title: **Gender and Intimate Partner Violence: Does Dual Arrest Reveal Gender Symmetry or Asymmetry?**
 Author(s): Gerstenberger, Caryn Bell; Williams, Kirk R.
 Source: JOURNAL OF INTERPERSONAL VIOLENCE Volume: 28 Issue: 8 Pages: 1561-1578 DOI: 10.1177/0886260512468325 Published: MAY 2013
 Times Cited: 0 (from Web of Science)
[Find@Bham](#) | [View abstract](#)
- Title: **Substance Misuse Subtypes Among Women Convicted of Homicide**
 Author(s): ...

Appendix F. List of excluded studies from final 83, plus studies that could not be accessed.

Excluded Reviews	
	<p>Dowden, C., & Andrews, D. A. (1999). What works for female offenders: A meta-analytic review. <i>Crime & Delinquency</i>, 45(4), 438-452.</p> <p>Gannon, T. A. (2010). Female arsonists: Key features, psychopathologies, and treatment needs. <i>Psychiatry</i>, 73(2), 173-189.</p> <p>Haywood, T. W., Kravitz, H. M., Goldman, L. B., & Freeman, A. (2000). Characteristics of women in jail and treatment orientations: A review. <i>Behavior Modification</i>, 24(3), 307-324.</p> <p>Hollin, C. R., & Palmer, E. J. (2006). Criminogenic need and women offenders: A critique of the literature. <i>Legal and Criminological Psychology</i>, 11, 179-195. doi: 10.1348/135532505x57991</p> <p>Kenny, M. C. (2007). Review of Women who perpetrate relationship violence: Moving beyond political correctness. <i>Child Abuse & Neglect</i>, 31(5), 596-597.</p> <p>Lagan, M., Knights, K., Barton, J., & Boyce, P. M. (2009). Advocacy for mothers with psychiatric illness: A clinical perspective. <i>International Journal of Mental Health Nursing</i>, 18, 53-61. doi: 10.1111/j.1447-0349.2008.00576.x</p> <p>Logan, C. (2009). Psychopathy in Women: Conceptual Issues, Clinical Presentation and Management. <i>Neuropsychiatry</i>, 23, 25-33.</p> <p>Logan, S.M.L. (2007). Mental health care in the African-American community</p> <p>McKeown, A. (2010). Female offenders: Assessment of risk in forensic settings. <i>Aggression and Violent Behavior</i>, 15(6), 422-429. doi: 10.1016/j.avb.2010.07.004</p> <p>Oliver, B. E. (2007). Preventing female-perpetrated sexual abuse. <i>Trauma Violence & Abuse</i>, 8(1), 19-32. doi: 10.1177/1524838006296747</p> <p>Sacks, J. Y. (2004). Women with co-occurring substance use and mental disorders (COD) in the criminal justice system: A research review. <i>Behavioral Sciences & the Law</i>, 22, 449-466. doi: 10.1002/bsl.597</p> <p>Solis, O. L., & Benedek, E. P. (2012). Female sexual offenders in the educational system: A brief overview. <i>Bulletin of the Menninger Clinic</i>, 76, 172-188</p> <p>Poels, V. (2007). Risk assessment of recidivism of violent and sexual female offenders. <i>Psychiatry, Psychology and Law</i>, 14(2), 227-250.</p> <p>Sorbello, L., Eccleston, L., Ward, T., & Jones, R. (2002). Treatment needs of female offenders: A review. <i>Australian Psychologist</i>, 37(3), 198-205.</p> <p>Tripodi, S. J., Bledsoe, S. E., Kim, J. S., & Bender, K. (2011). Effects of correctional-based programs for female inmates: A systematic review. <i>Research on Social Work Practice</i>, 21(1), 15-31.</p> <p>Vess, J. (2011). Risk assessment with female sex offenders: Can women meet the criteria of community protection laws? <i>Journal of Sexual Aggression</i>, 17, 77-91. doi: 10.1080/13552600.2010.528844</p> <p>Wright, E. M., Van Voorhis, P., Salisbury, E. J., & Bauman, A. (2012). Gender- responsive lessons learned and policy implications for women in prison: A review. <i>Criminal Justice and Behavior</i>, 39, 1612-1632. doi: 10.1177/0093854812451088</p>
Excluded Books	
	<p>Gannon, T. A., & Cortoni, F. (2010). <i>Female sexual offenders: Theory, assessment and treatment</i>. New York, NY: John Wiley & Sons.</p> <p>Boer, D.P. (2011). <i>International perspectives on the assessment and treatment of sexual offenders: Theory, practice, and research</i>. New York, NY: Wiley Blackwell.</p> <p>Herve, H., & Yuille, J. C. (2007). <i>The Psychopath: Theory, Research, and Practice</i>. New Jersey: Routledge.</p> <p>Patrick, C. J. (2006). <i>Handbook of psychopathy</i>. New York, NY: Guildford Press.</p> <p>Simmons, C. A., Lehmann, P., & Cobb, N. (2009). A comparison of women versus men charged with intimate partner violence: General risk factors, attitudes regarding using violence, and readiness to change. Murphy, Christopher M [Ed], 227-250.</p>

	<p>Springer, D. W., & Roberts, A. R. (2007). Handbook of forensic mental health with victims and offenders: Assessment, treatment, and research. 623.</p> <p>Steen, C. (2006). <i>Choices: A relapse prevention workbook for female offenders</i>. Brandon, VT. Safer Society Press.</p>
Excluded Dissertations	
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	<p>Grella, C. E., & Rodriguez, L. (2011). Motivation for Treatment Among Women Offenders in Prison-Based Treatment and Longitudinal Outcomes Among Those Who Participate in Community Aftercare. <i>Journal of Psychoactive Drugs</i>, 58-67. doi: 10.1080/02791072.2011.602275</p> <p>Hannah-Moffat, K., & Yule, C. (2011). Gaining insight, changing attitudes and managing 'risk': Parole release decisions for women convicted of violent crimes. <i>Punishment & Society-International Journal of Penology</i>, 13, 149-175. doi: 10.1177/1462474510394961</p> <p>Hebert, M. R., Clarke, J. G., Caviness, C. M., Ray, M. K., Friedmann, P. D., & Stein, M. D. (2008). Feasibility of gaining access to women in jail for health interventions. <i>Women & Health</i>, 47, 79-94. doi: 10.1080/03630240802134159</p> <p>Long, C., Dolley, O., & Hollin, C. (2012). Engagement in psychosocial treatment: Its relationship to outcome and care pathway progress for women in medium-secure settings. <i>Criminal Behaviour and Mental Health</i>, 22, 336-349. doi: 10.1002/cbm.1824</p> <p>Lovins, L. B., Lowenkamp, C. T., Latessa, E. J., & Smith, P. (2007). Application of the risk principle to female offenders. <i>Journal of Contemporary Criminal Justice</i>, 23(4), 383-398.</p> <p>Shewan, D., Hammersley, R., Oliver, J., & MacPherson, S. (2000). Fatal drug overdose after liberation from prison: A retrospective study of female ex-prisoners from Strathclyde region (Scotland). <i>Addiction Research</i>, 8, 267-278. doi: 10.3109/16066350009004425</p> <p>Weizmann-Henelius, G., Sailas, E., Viemero, V., & Eronen, M. (2002). Violent women, blame attribution, crime, and personality. <i>Psychopathology</i>, 35(6), 355-361.</p>
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Appendix G. Quality Assessment

2=yes, 1=possibly, 0=no, or DK	1. Anumba et al., 2012	2. Bonta et al., 1995	3. Coulson et al., 1996
1. Is the hypothesis clearly stated? (consider population, risk factors, outcome)	2	2	2
2. Are the methodology/ design appropriate?	2	2	2
3. Was sample recruited in an acceptable way? (consider selection bias)	2 – Cross sectional in nature. The group consisted of female offenders released from private assessment and rehabilitation centers operated by Community Education Centers (CEC) in New Jersey between 2004 and 2006.	2 – Aimed to gather data from all federally sentenced women within a specific time frame, community sample in study 2 potentially biased due to strike issues with probation officers	2 – Aimed to gather data from all women admitted to the institution between a specific time frame.
4. Was the independent variables accurately measured? (Consider measurements, validation of these measures, consistency, measurement/ classification bias)	1 – Archival review utilising intake interviews, predesigned coding guide for variables including the LSI-R and PAI Measure of social functioning made up of multiple information sources, unclear how this decision was made	1 – SIR parole tool in Canadian federal prison, proven reliability and validity (but poor generalizability). Interviews to collect gender specific factors, but as women were given control of the interview, not all variables were collected consistently from each participant.	2 – Utilised the LSI-R
5. Was outcome accurately measured? (Consider measurement or classification bias, measurements used, reliability)	2 – Mental health functioning utilising scores from the Personality Assessment Interview (PAI) and file review data (coded dichotomously Also used official records to determined reoffending from NJ Department of Corrections	2 – Official records were used from Correctional Service of Canada and RCMP fingerprint service	2 – Three outcomes were measured using official police data: Reoffending, parole failure and halfway house failure
6. Have confounds been identified and/or accounted for by researchers? (consider restriction in design, statistical corrections or techniques to control, adjust for confounding factors)	2 – Yes, researches acknowledge difficulties using archival data. Also note that ethnic make-up of their sample differs from nationwide samples. Concerns also noted regard autocorrelation, as the predictor and outcome variables for socio-functioning and mental health came from the same scale (PAI) Uses bonferroni to restrict p value to control for familywise error.	2 – Acknowledged problems with community sample and interviews	1 – Confounds identified in terms of cut offs used for LSI-R, as well as questions surrounding lying on questionnaires as part of positive impression management
7. Was follow-up long enough and/or complete enough?	1 – One year follow up	2 – Three year follow up	2 – One - Two year follow up

8. Were there attrition issues?	2 - No	0 – Not discussed	1 – Yes
9. How significant are the results? (consider effect sizes .3 moderate, .5 large)	1 – Moderate to small effect sizes: Hypothesis one, female offenders with a hx of victimisation will experience more mental health problems than those with no mental health problems (small effect size) Hypothesis 2: socio effective functioning will be protective factor against mental health problems in females with victimisation- small to medium effect sizes Hypothesis 3: Positive effect of socio-effective functioning will not be as strong for females with no history of victimisation, small to medium effect sizes	1 - Study 1: Moderate effect sizes for adult age at first conviction and sentence length predicting recidivism Study 2: Moderate effect sizes for adult conviction and prior incarceration, small effect size of unarmed robbery	1 – Effect sizes are not reported. Results are mostly descriptive and differences between groups.
10. How precise are the results (consider confidence intervals)	0 – CIs not reported	1 – CIs not reported, SE reported for significant variables in regress, they range from small (SE = .426 for type of release) to large (SE = 18.718)	0 CIs not reported
11. Are the results believable? (consider confounds, design flaws etc.)	2- yes Concerns regarding social functioning measure, dichotomous nature of victimisation	2 – Despite confounds	1 – Results are believable but inferential statistics not used in this study, therefore results are less robust
12. Relevance of results to UK population?	2 Potentially yes	2 – Potentially yes	1 – Some relevant to UK populations, but tool not used routinely on prisoners
13. Do results add anything to other literature?	1 – Victimisation was not connected to recidivism, however it does provide support for the long term impact of victimisation in terms of mental health difficulties and socio-effective functioning	2 – Encourage further investigation of gender specific factors such as employment, parenthood and partner support	0 – Validation study, does not add much more to the picture of female violence or understanding reoffending
Total Score	21/26 – 80.77%	21/26 – 80.77%	17/26 – 65.38%

2=yes, 1=possibly, 0=no, or DK		4. Eisenbarth et al., 2012	5. Folsom & Atkinson, 2007	6. Holtfreter et al., 2004
1.	Is the hypothesis clearly stated? (consider population, risk factors, outcome)	2	2	2
2.	Are the methodology/design appropriate?	2	2	2

3.	Was sample recruited in an acceptable way? (consider selection bias)	1 – 80 female offenders from the Munich Prognosis Project (all females referred for assessment between specified time frame). It is not clear how this 80 was chosen from the wider larger study.	1 – Voluntary participation, therefore potential bias.	1 – Voluntary, via probation offices
4.	Was the independent variables accurately measured? (Consider measurements, validation of these measures, consistency, measurement/ classification bias)	1 - PCL-R, HCR-20 and VRAG, well validated measure but inter-rater reliability not reported, or how these measures were scored	1 – Level of Service Inventory – Revised, Child and Adolescent Taxon Scale (a measure of early onset antisocial difficulties), both previously validated on male samples (scored by self-report, no corroboration from files)	2 – LSI-R, poverty, education and minority status
5.	Was outcome accurately measured? (Consider measurement or classification bias, measurements used, reliability)	2 – Reoffending using official police databases	2 – Official records, RCMP fingerprint service	2 – official records
6.	Have confounds been identified and/or accounted for by researchers? (consider restriction in design, statistical corrections or techniques to control, adjust for confounding factors)	0 – No confounds or limitations are discussed in this study, discussion of how scale were scored.	1 – Acknowledge limitations with self-report	2 – Analysis drop outs separately, checked for collinearity
7.	Was follow-up long enough and/or complete enough?	2 – Up to 8 years (mean 95.5 months)	2 – Mean of 6 years	1 – 6 months
8.	Were there attrition issues?	2 – No, follow-up data found for entire sample	1 – Lost 15% of sample	1 – Large attrition, analysis indicated some differences between drop outs.
9.	How significant are the results? (consider effect sizes .3 moderate, .5 large)	1 – A range of effect sizes from small (AUCs < .60) to medium effect size. One AUC had a large effect size (AUC .72)	2 – Moderate effect size for LSI and any recidivism, small effect size for CAT and any or violent recidivism Moderate AUCs for LSI and CAT, especially for violent offending	2 Large odd ratios (e.g., poverty increased parole violation by 12.7).
10.	How precise are the results (consider	0 – None reported	1 some of the CIs reported are large and would result in moderate AUCs being	0 – CIs not reported

	confidence intervals)		less than chance (e.g., AUC for violent recidivism predicted by the LSI-R was .66 +/- .11).	
11.	Are the results believable? (consider confounds, design flaws etc.)	2 – Largely reflective of other literature	2	2
12.	Relevance of results to UK population?	2 - Yes	1 – Potentially yes, but LSI-R not routinely used in UK (maybe CAT is)	1 – Potential differences in poverty levels, income, government assistance
13.	Do results add anything to other literature regarding female offending?	1 – Further validation of three popular risk assessment tools in a German sample, illustrates difficulties using traditional male risk assessment tools on females, but do not add anything unique to the prediction of female offending	1 – No specific factors examined, demonstrated some validation for LSI-R and CAT	2
	Total Score	19/26 – 73.07%	19/26 – 73.07%	20/26 – 76.92%

	2=yes, 1=possibly, 0=no, or DK	7. Kimonis et al., 2010	8. Loucks & Zamble, 1999	9. Loza et al., 2005
1.	Is the hypothesis clearly stated? (consider population, risk factors, outcome)	2	2	2
2.	Are the methodology/design appropriate?	2	2	2
3.	Was sample recruited in an acceptable way? (consider selection bias)	2 – Randomly selected from specific criteria	0 – Recruiting not described in this study	1 – Voluntary participation, therefore potential bias (authors state they do not expect a difference between those who volunteered and those who did not, but this is only an estimate)
4.	Was the independent variables accurately measured? (Consider measurements, validation of these measures, consistency, measurement/classification bias)	2 – Variety of validated measures Child Abuse and Trauma Scale (CATS, measure abuse), Personality Assessment Inventory (PAI, to measure internal and external psychopathology), PCL-R antisocial scale (lifetime criminality, using the three factor model) – researchers underwent	0 – States semi-structured interview, self-report inventories and file coding, but no specifics	2 – SAQ, previously validated (self-report questionnaire)

		extensive training in these tools.		
5.	Was outcome accurately measured? (Consider measurement or classification bias, measurements used, reliability)	2 – FBI National Crime Information Centre	2 – Official records were used from Correctional Service of Canada and RCMP fingerprint service	2 – Re-incarceration, official records
6.	Have confounds been identified and/or accounted for by researchers? (consider restriction in design, statistical corrections or techniques to control, adjust for confounding factors)	2 – Discussion of a number of limitations including self-report of some variables, cross-sectional data collection for part of the study, criterion contamination regarding overlapping variables.	0 - There is no discussion of potential limitations in this study, or of any corrections taken during statistical analysis. Methodology is unclear.	1 – Uses volunteer group, discusses how this is not an issue. Missing some information about sentence length and violent history on portion of sample. Data not collected consistently between two samples (for LSI-R). No discussion of limitations or statistical corrections.
7.	Was follow-up long enough and/or complete enough?	1 – One year follow up	2 – Average three years	1 – One year follow up
8.	Were there attrition issues?	2 - No attrition	0 – not discussed	0 – not discussed
9.	How significant are the results? (consider effect sizes .3 moderate, .5 large)	1 – No effect for any of the scales or PCL-R on future recidivism. Moderate effect size of total abuse (as measured by the CAT) and Impulsivity (as measured by the PAI) with lifetime criminality (as measured by antisocial scale on PCL-R). Small effect of other externalizing and internalizing psychopathology on lifetime criminality.	0 – Psychopathy, past criminal history and substance abuse by father most predictive at 5 year follow up (no statistics reported)	1 – Moderate effect for SAQ for any recidivism
10.	How precise are the results (consider confidence intervals)	1 – CIs not reported for logistic regression	0 – No statistics reported	0 – CIs not reported
11.	Are the results believable? (consider confounds, design flaws etc.)	2	1 – Only believable because results echo that of other studies, however because of the write up of the study, it is difficult to ascertain the true believability of the study.	2
12.	Relevance of results to UK population?	2 – Potentially yes	2 – Potentially yes	1 – Potentially yes, but the applicability of the SAQ to a UK population is

				questionable
13.	Do results add anything to other literature regarding female offending?	1 – Lack of results, most factors associated with lifetime criminality, which is just a PCL-R measure. Presents an interesting meditating model.	1 – Mostly non-significant results and does not really add anything to the knowledge of female crime, how results regarding the PCL do echo other study results.	0 – Only one result, mostly a validation study, does not add anything regarding risk factors
	Total Score	22/26 – 84.61%	12/26 – 50.00%	15/26– 57.69%

2=yes, 1=possibly, 0=no, or DK		10. Palmer & Hollin, 2007	11. Putkonen et al., 2003	12. Reisig et al., 2006
1.	Is the hypothesis clearly stated? (consider population, risk factors, outcome)	2	2	2
2.	Are the methodology/design appropriate?	2	2	2
3.	Was sample recruited in an acceptable way? (consider selection bias)	0 – Not reported	2 – All women convicted of homicide in Finland between 1982 - 1992	1 – Voluntary participation
4.	Was the independent variables accurately measured? (Consider measurements, validation of these measures, consistency, measurement/classification bias)	2 – LSI-R	1 – Gathered from file reviews and records, did not use validated scales etc.	2 – LSI-R, gathered from interviews and file data and participants classified by “gendered pathways” into crime
5.	Was outcome accurately measured? (Consider measurement or classification bias, measurements used, reliability)	2 – National offender database	2 – Gathered retrospectively from official records	2 – Official data, considered a number of outcomes including rearrest, reconviction, supervision failure.
6.	Have confounds been identified and/or accounted for by researchers? (consider restriction in design, statistical corrections or techniques to	1 – Attempts made to control for certain variables such as age and criminal history and multicollinearity controlled for, no limitations discussed.	2 – discussion of limitations	0 – No discussion of limitations or statistical corrections taken.

	control, adjust for confounding factors)			
7.	Was follow-up long enough and/or complete enough?	2 – 2.5 years follow up	2 – Up to 12 year follow up	1 – 11 month follow up
8.	Were there attrition issues?	1 – Yes, reconviction data only available on 96/150 participants	2 – No, retrospective	1 – 42% attrition, researchers attempted to account for this
9.	How significant are the results? (consider effect sizes .3 moderate, .5 large)	2 - Large effect for LSI total and reconviction, moderate effect size for criminal history, education/employment, leisure/recreation, companions, and alcohol and drugs (p<.001), moderate effect size for financial, marital/family, attitudes (p<.01)	2 – Odds ratio 2.92 drug/alcohol dependency, 1.83 for personality disorder, 9.36 prior criminal history, under 25 1.62	1 – Moderate effect for LSI in unclassified sample, small effect in economically deprived sample, no effect in gendered samples
10.	How precise are the results (consider confidence intervals)	2 CIs reported, do not appear large	1 – Wide CIs drug/alcohol abuse (1.37–6.21), personality disorder (0.55–6.07), prior criminal history (2.84–30.84)	1 – Question the relevance of the gendered pathways
11.	Are the results believable? (consider confounds, design flaws etc.)	2	2	2
12.	Relevance of results to UK population?	1 LSI-R not necessarily widely used in the UK	1 – Given Finnish population and sample of homicide offenders only, relevance is reduced	2 – Potentially yes
13.	Do results add anything to other literature regarding female offending?	0 - Only one result, mostly a validation study, does not add anything regarding risk factors or gender responsive factors	1 – Offers a focus on a number of factors outside of risk assessment tools, including PD and historical factors.	1 – Does not add a lot of results to field, but encourages a further look at gendered risk factors. Interesting approach to combine an examination of both types of factors (GN/GR).
	Total Score	19/26 – 73.10%	22/26 – 84.62%	18/26 – 69.23%

2=yes, 1=possibly, 0=no, or DK		13. Rettinger & Andrews, 2010	14. Richards et al., 2003	15. Salekin et al., 1998
1.	Is the hypothesis clearly stated? (consider population, risk factors, outcome)	2	2	2
2.	Are the methodology/ design	2	2	2

	appropriate?			
3.	Was sample recruited in an acceptable way? (consider selection bias)	1 – Voluntary participation	1 – Participants recruited to a drug treatment programme from a maximum security prison via multiple methods (voluntary). However, participants were randomly assigned to treatment condition.	1 – Voluntary participation
4.	Was the independent variables accurately measured? (Consider measurements, validation of these measures, consistency, measurement/classification bias)	1 – Gendered variables were perhaps collected with less depth, due to the archival nature, LSIs were either scored by researchers or by a third party	2 – PCL-R/PCL:SV, treatment variables. PCL-R score with 23 training scales, IRR .90, and cases over 30 were doubled coded. Scoring also discussed with tool creator (R. Hare).	2 - PCL-R, PAI, PDE (Personality disorder examination)
5.	Was outcome accurately measured? (Consider measurement or classification bias, measurements used, reliability)	2 – RCMP databases (National records)	2 – FBI Criminal Justice Service (National records)	1 – Official records for the state of Texas only, does not include out of state offending
6.	Have confounds been identified and/or accounted for by researchers? (consider restriction in design, statistical corrections or techniques to control, adjust for confounding factors)	2	2 – Authors discuss potential difficulties with attrition - Use Cox Regression in addition to ANOVAs to ensure various follow-up times is not a confound for # of days released. Acknowledge restricted PCLR range (over 30 excluded).	2
7.	Was follow-up long enough and/or complete enough?	2 – Mean follow up time 57 months	1 – 1 year	2 – Mean follow up time 14 months
8.	Were there attrition issues?	2 – No, retrospective	1 – Only 75% of sample retained, possible bias introduced	0 – not mentioned in study
9.	How significant are the results? (consider effect sizes .3 moderate, .5 large)	2 - Large/moderate effect; Risk/Need ($r = .63, .45, .54$) for violence, general and number of offenses, AUCs of .86 for violence and .87 for general offending Nagelkerke R^2 from the binary logistic analysis was 90%	1 - Violence and Factor 1 (.0748 - .194 $p < .05$, $p < .001$), Violence and Factor 2 (-.003 - .125 $p > .05$, $p < .001$) High psychopathy in community for significantly less days compared to low psychopathy ($F(2, 236)$)	1 – Small/moderate effects; Only Factor 1 scores were correlated to reoffending (.26 $p < .05$), not total or Factor 2 scores. Antisocial scale on the PAI was correlated (.26 $p < .05$) as was aggression subscales

			= 7.93, $p < .005$)	(.29 - .25 $p < .05$) ROC .64 for PCL-R psychopathy and reoffending, odds ratio of 1.06 for PCL-R Egocentricity and Verbal Aggression from the PAI also predictive of offending
1 0.	How precise are the results (consider confidence intervals)	2	0 - CIs not reported	0 - CIs not reported
1 1.	Are the results believable? (consider confounds, design flaws etc.)	2	2	2
1 2.	Relevance of results to UK population?	2	2	2
1 3.	Do results add anything to other literature regarding female offending?	2 - Included both gender neutral and gender responsive factors	0 - No other factors considered regarding predicting reoffending other than the PCL-R	1 - One of the first studies to examine predictive validity of PCLR in females, plus personality factors
Total Score		24/26 - 92.31%	18/26 69.23%	18/26 - 69.23%

2=yes, 1=possibly, 0=no, or DK		16. Salisbury & Van Voorhis, 2009	17. Salisbury et al., 2009	18. Sandler & Freeman, 2009
1.	Is the hypothesis clearly stated? (consider population, risk factors, outcome)	2	2	2 - Yes, exploratory nature state with two main research goals
2.	Are the methodology/design appropriate?	2	2	2
3.	Was sample recruited in an acceptable way? (consider selection bias)	2 - Sample was selected in proportion to population and specific regions	2 - All women admitted to the state DOC between October 10, 2000 and January 8, 2001, 156 women offenders	2 - Inclusions of all females convicted of a sexual offense in the state of New York between specific time frames
4.	Was the independent variables accurately measured? (Consider measurements, validation of these measures, consistency, measurement/classification bias)	1 - Self-report and interview, using a pre designed measure to assess gender specific needs - therefore validity unclear and issues with the accuracy of self-report	1 - Multiple scales used tapping a variety of gendered risk factors. Some scales were made up of merged scales, therefore validity/reliability of these measures unclear.	2 - All from computerized records
5.	Was outcome accurately measured?	2 - From State prison database	2 - Official police records of new crimes or technical breaks	1 - Official records from the state only (not national)

	(Consider measurement or classification bias, measurements used, reliability)			- Used rearrest as measure, not reconvection, possible may produce false positives due to broad measure
6.	Have confounds been identified and/or accounted for by researchers? (consider restriction in design, statistical corrections or techniques to control, adjust for confounding factors)	2 – Discussion of limitations	1 – Confound identified such as small sample size, incomplete identification of gender specific variables, largely correlation therefore not necessarily predictive however considering that the all analysis is correlations, a more restricted p value should have been applied to account for familywise error	2 – Acknowledge missing information including regarding victims or circumstances of offences - Bonferroni use to account for type 1 error, collinearity examined and variables removed.
7.	Was follow-up long enough and/or complete enough?	2 – 2 year follow up (retrospective)	2 - 44.2 months	2 – 5 year follow up
8.	Were there attrition issues?	2 – 97% of sample was retained	1- Yes, 25 participants	2 – no because overall study was retrospective
9.	How significant are the results? (consider effect sizes .3 moderate, .5 large)	1 – path analysis, therefore predictive power not able to be assessed.	1 – results significant at p = .001 often, but only correlational so power of analysis is reduced.	1 – all p values < .001, but no effect sizes reported for recidivism analysis.
10.	How precise are the results (consider confidence intervals)	0	0 – CIs or SE, pearson rs only	1
11.	Are the results believable? (consider confounds, design flaws etc.)	2	1 – Only relational	2
12.	Relevance of results to UK population?	2	2	2
13.	Do results add anything to other literature regarding female offending?	1 – Yes, encourage further examination of gender specific factors, but with inferential statistics	1 – Encourage the exploration of gender specific factors, however need more robust statistics	1
Total Score		21/26 – 84.61%	19/26 – 73.01%	22/26 – 84.61%

2=yes, 1=possibly, 0=no, or DK		19. Seigel & Williams, 2003	20. Van Voorhis et al., 2008	21. Verbrugge et al., 2002
1.	Is the hypothesis clearly stated? (consider population, risk	2	2	2

	factors, outcome)			
2.	Are the methodology/design appropriate?	2	2	2
3.	Was sample recruited in an acceptable way? (consider selection bias)	1 – potential selection bias, participants gathered from ER admissions in one hospital , authors highlight the population is not necessarily generalizable	2 – multiple States and samples (prison, probation)	2 – All women identified with a substance abuse problem release between 1 st Jan 1995 – 31 st Dec 2000
4.	Was the Independent variables accurately measured? (Consider measurements, validation of these measures, consistency, measurement/classification bias)	2 – From hospital records	1 – Interview and surveys subjected to “standard scale construction analysis”. However, data was not collected evenly across sites, resulting in varying Ns and this construction is not described	2 – Scale (CIS) is validated, all other information gathered from official records, across the entire sample
5.	Was outcome accurately measured? (Consider measurement or classification bias, measurements used, reliability)	1 – From court records, but did not extend outside city	1 - Prison misconduct, re-offense or re-arrest using official records, varied between sites	2 – Collected consistently across sample using official records of reoffending or revocation of release
6.	Have confounds been identified and/or accounted for by researchers? (consider restriction in design, statistical corrections or techniques to control, adjust for confounding factors)	2 – Confounds were identified by authors (population, outcome measures).	1 - Differences between sites are acknowledged, but not discussed how this may have influenced results. The studies utilised multiple correlations, it is unclear if issues of multicollinearity or family wise error are addressed.	1 – Differences were noted within the sample from provinces, and over representation of minority groups. This potential confounds were not addressed.
7.	Was follow-up long enough and/or complete enough?	2 - 20 years plus follow up	1 – Follow up times varied between sites from 6 months to 24 months follow up	1 – Follow up time varied from 247 days to 685 days depending on when reoffending occurred
8.	Were there attrition issues?	2 – No issues raised by authors	0 – This was not discussed in the study	0 – This was not discussed in the study
9.	How significant are the results? (consider effect sizes .3 moderate, .5 large)	1 - Child abuse increased odds of arrest for offending by 1.955 compared to control	1 - There are no large effect sizes regarding specific items and criminality outcomes. Most effect sizes approach the moderate level, but are mostly small.	1 – Small effect sizes regarding reoffending, and many CIS factors we note associated with recidivism

			Moderate effect sizes for addition of gender specific items to gender neutral items.	
10.	How precise are the results (consider confidence intervals)	2 - SEs	0 – Multiple p-values are used (.05 -.01), but values of .10 are deemed significant in this study.	0 - no confidence intervals given.
11.	Are the results believable? (consider confounds, design flaws etc.)	2	2	1 – Results are believable, but add little to the current literature for reoffending, focus is mainly on revocation for release without offending
12.	Relevance of results to UK population?	1 – Sample from one city in American Midwest, with ethnic minorities, therefore generalizability to UK unclear	2 – There is potential for utility to UK sample, despite a different country.	1 – The CIS is not a widely used tool, so generalizability is poor
13.	Do results add anything to other literature regarding female offending?	2 – Demonstrate child abuse as a risk factor	2 – Results add to the limited evidence of the importance of gender specific risk factors	1 - The importance of past offending predicting future offending fits with past literature, but there are few other results.
Total Score		22/26 – 84.61%	17/26 – 65.38%	16/26 – 61.54%

2=yes, 1=possibly, 0=no, or DK		22. Warren et al., 2005	23. Warren et al., 2002	24. Wiezmann-Henelius et al. 2004
1.	Is the hypothesis clearly stated? (consider population, risk factors, outcome)	2	2	2
2.	Are the methodology/design appropriate?	2	2	2
3.	Was sample recruited in an acceptable way? (consider selection bias)	1 – Women selected from a larger study for specific characteristics (therefore less random)	1 – From a larger study, selected using specific criteria	1– All violent female offenders in the year 2000 sampled, but voluntary participation
4.	Was the independent variables accurately measured? (Consider measurements, validation of these measures, consistency, measurement/classification bias)	2 – HCR-20 and PCL-R from file and interview, across the sample, multiple raters for each file	2 – A variety of standardized measures	2 – PCLR, SCID-II, WAIS and structured interview with file data, collected across sample

5.	Was outcome accurately measured? (Consider measurement or classification bias, measurements used, reliability)	2 – From prison files (examined a range of crime types)	2 – Official records and violence scale	2 – Official records
6.	Have confounds been identified and/or accounted for by researchers? (consider restriction in design, statistical corrections or techniques to control, adjust for confounding factors)	2	0 – No discussion of limitation or confounds, or adjustments	2 – Interrater checked and distribution of sample, discussion of limitations
7.	Was follow-up long enough and/or complete enough?	1 – No follow up, examination for postdiction	1 no follow up, offense postdicted	1 no follow up, offense postdicted
8.	Were there attrition issues?	1 – The authors call it “natural attrition” and is deemed not significant	2 – retrospective, no attrition	2 – retrospective, no attrition
9.	How significant are the results? (consider effect sizes .3 moderate, .5 large)	1 – Moderate – small effect sizes (ACUS range from .30 - .71 for the PCLR and difference offences; .30 - .74 for HCR20 and various offences) Highest (.71, .74) for minor non-violent crime	2 - Odds ratios 1.96 – 7.57	1
10.	How precise are the results (consider confidence intervals)	2 – Appropriate CIs	2 - SEs	1 – Analyses only of relationships, nothing predictive, as such precision and power of analysis is reduced.
11.	Are the results believable? (consider confounds, design flaws etc.)	1 – Surprising that neither the HCR20 or PCLR were predictive of violence	1 – Unexpected results regarding the relationship of Cluster B and Cluster A personality disorders with violence	2
12.	Relevance of results to UK population?	2	2	1
13.	Do results add anything to other literature regarding female offending?	1 Point to potential differences in the applicability of the PCL and HCR20 to female offenders but no other factors examined	2	2
Total Score		20/26 – 76.92%	21/26 - 80.77%	21/26 - 80.77%

Appendix H. Data Extraction Tables for the Final 24

1. Title of study	Social Functioning, Victimization and Mental Health among Female Offenders
Author	Anumba, N., Dematteo, D., Heilbrun, K.
Year of publication	2012
Country of study	United States
Participants	300 female offenders
Study Objective	To examine if female offenders who have experienced victimisation will have a higher prevalence of mental health, if this victimisation and deficits in social functioning are related to involvement in the criminal justice system and to examine the benefit of social functioning on this relationship.
Intervention (if any)/Outcome	None
Location/setting	Prison
Methodology	Archival study
Results	<p>Hypothesis 1, relationship between victimisation and mental health problems: PAI stress score of the victimized group ($M = 59.02$, $SD = 11.88$) was significantly higher than that of the non-victimized group ($M = 55.66$, $SD = 9.01$), $F(1, 290) = 6.14$, $p = .014$, $\eta^2 = .02$ (small effect size).</p> <p>Comparison on PAI anxiety scale scores. No significant differences in ANX scores were found between victimized ($M = 53.10$, $SD = 11.68$) and non-victimized females ($M = 51.14$, $SD = 9.07$), $F(1, 290) = 2.14$, $p = .145$, $\eta^2 = .01$ (small effect size).</p> <p>Hypothesis 2, relationship between victimisation, social functioning and reoffending: Victimization history and non-support (on PAI) score were not significant predictors of post release arrests in the year following release. Neither victimization history nor years of education taken together significantly predicted rearrests.</p>
Authors' conclusions	childhood victimization was not associated with recidivism but was associated with vulnerability to stress and mental health problems in female offenders
Strengths and Weaknesses of Study	Strengths: fairly large sample size (300), multiple measures of mental health Weaknesses: Non-significant results regarding links between victimisation and reoffending, low number of rearrests, only one year follow up, victimisation was collapsed into one dichotomous variable (all types of abuse)

2. Title of study	Predictors of Recidivism Among Incarcerated Female Offenders
Author	Bonta, J., Pang, B. & Wallace-Capretta, S.
Year of publication	1995
Country of study	Canada
Participants	<p>Study 1: 81 incarcerated females at a Canadian Federal Prison released between 1983 - 1984</p> <p>Study 2: 136 federal sentence female offenders either in prison or on parole in the community</p>
Study Objective	To examine predictive ability of a risk assessment tool designed on a male offender sample (SIR parole scale) with female offenders and to examine other potential risk factors for female recidivism

Intervention (if any)/ Outcome	No intervention New offense or parole violation that leads to revocation of release, as measured by official RCMP records
Location/setting	Prison/Community
Methodology	Study 1: SIR scores collected from file, with 10 year follow up Study 2: 136 federally sentenced women completed interviews with researchers using a semi structured interview to cover consistent variables, file data also collected. There was a three year follow up and then offense information was collected from official correction records.
Results	Study 1: SIR correlated to recidivism ($r = .25$ $p < .05$), and only age at first offense and sentence length predicted recidivism (.34, .30 $p < .05$) Study 2: prior adult offense ($r = .46$ $p < .001$), Only unarmed robbery was the only specific crime associated with recidivism (.17 $p < .05$), and drug offenses was negatively correlated with recidivism (-.28 $p < .001$), single mothers ($x^2 = 4.01$, $df = 1$, $p < .05$) compared to mothers with partners, depending on illegal income ($x^2 = 17.14$ $p < .001$) or welfare ($x^2 = 3.88$ $P < .05$), self-harm ($x^2 = 11.33$ $P < .001$) and sentence length Prison treatment not related to outcome, but violence towards staff (.22 $p < .05$) and number of incidents were (.27 $p < .01$) Not associated with recidivism: juvenile offense, drug and alcohol use, offense committed with a co-offender, childhood abuse
Authors' conclusions	Study 1: little evidence to use scale with females, mildly associated with outcome and few items were related, poor prognostic ability with categories Study 2: Some factors the same as males (crime, prior crime history and sentence length), abuse unrelated to recidivism in women which is contrary to much research, as was treatment. The authors conclude more research is needed at this point into female offender risk factors
Strengths and Weaknesses of Study	Strength: Long follow up time, adequate sample size for study 2 Weaknesses: Difficult to analyse all SIR items because not all women had all risk factors (e.g. violent sexual offense or prior parole violation), small sample in study 1 Biased community sample in study 2 according to authors, interviews, despite being semi-structured were controlled by the women so they did not answer all questions (therefore some data was not gathered)

3. Title of study	Predictive utility of the LSI for incarcerated female offenders
Author	Coulson, G., Ilacqua, G., Nutbrown, D., Giulekas, D. & Cudjoe, F.
Year of publication	1996
Country of study	Canada
Participants	526 women discharged from a medium secure prison in Canada (consecutive discharges)
Study Objective	Assess the predictive validity of the LSI in a sample of incarcerated females
Intervention (if any)/ Outcome	No intervention Outcome: 3 types of failure (parole failure, reoffending, halfway house failure) using official database

Location/setting	Prison, community and halfway house
Methodology	1 - 2 year follow up from facility, including discharge to probation or halfway house. LSI completed at start of sentence using computer assisted interview.
Results	LSI correlated with recidivism .51**, .53** with parole failure, .45** for half way house failure. Significant difference in recidivism for low (8%) and high risk (29.5%) LSI groups $\chi^2 (2, n = 182) = 11.78^{***}$
Authors' conclusions	Risk level, as predicted by the LSI predicted outcome regardless of discharge type and appears to be a valid risk assessment tool for female offenders, especially to inform discharge planning.
Strengths and Weaknesses of Study	Adequate follow-up times and sample generalizability to wider population of Canadian offenders. Lacks multivariate statistics with more power (e.g. regression). No follow-up for type of offending included either (e.g., violent or not).

4. Title of study	Recidivism in female offenders: PCL-R lifestyle factor and VRAG show predictive validity in German Sample
Author	Eisenbarth, H., Osterheider, M., Nedopil, N. & Stadtland, C.
Year of publication	2012
Country of study	Germany
Participants	80 female offenders from Germany (part of the Munich Prognosis Project – this is not specified).
Study Objective	Assess the predictive validity of the HCR-20, PCL-R and VRAG in a sample of German female offenders
Intervention (if any)/ Outcome	No Intervention Outcome was reoffending using official records
Location/setting	Prison
Methodology	Risk assessment scores gathered from assessment in 1994/1995. Official data used to assess outcome. Individual was followed until recidivism.
Results	PCL-R total score was significantly predictive for general recidivism (AUC = 0.66*) At factor level, Hare's antisocial lifestyle (Factor 2 ; AUC = 0.64*), Of Hare's 4 facet model, Hare's lifestyle facet 3 (AUC=0.65*) the only one predictive Cooke's impulsive and irresponsible behavioural style factor 3 showed a significant predictive result (AUC=0.65*) VRAG also predicted significantly general recidivism (AUC=0.72*). Null results: HCR-20 total or scales not predictive (AUCs ranged from 0.56 – 0.61, $p > .05$) PCL factors not predictive: Hare's Interpersonal/Affective Factor 1 (AUC = .58, $p > .05$) Facet 1,2,4 of Hare's 4 facet model not predictive (AUC ranged .56 - .65, $p > .05$).

	Factor 1, 2 of Cooke's 3 factor model not predictive (AUC .58, .61, $p > .05$).
Authors' conclusions	Results point to the importance of lifestyle factors in female offenders to predict recidivism. Authors encourage validation of results with larger samples and assessment of violent offenders. Caution use of any of these assessment measures as stand alone risk assessments for prediction of recidivism in female offenders.
Strengths and Weaknesses of Study	Length follow-up, multiple risk assessments used, assessed the 3 and four factor models of the PCL-R No division by recidivism type, unclear how this 80 women sample was selected as they are from a larger study (MPP), small sample.

5. Title of study	The Generalizability of the LSI-R and CAT to the Prediction of Recidivism in Female Offenders
Author	Folsom, J., & Atkinson, J.L
Year of publication	2007
Country of study	Canada
Participants	100 female offenders at a Canadian Federal Prison
Study Objective	To examine predictive ability of the LSI-R and the CAT (Child and Adolescent Taxon Scale) in a sample of female offenders
Intervention (if any)/ Outcome	No intervention Any recidivism, separated into violent or non-violent. Information was collected from RCMP databases
Location/setting	Prison/Community
Methodology	Research assistance administered both the LSI-R and CAT, and collected demographic variables. Mean follow up of 6 years (2.6 – 7.1 years). Participants were followed until their first offense.
Results	LSI-R was correlated with any recidivism ($r = .30$ $p < .01$), but not when specifically examined for violent or nonviolent. LSI-R classification was able to distinguish low group from moderate and high in time to recidivate (Wilcoxon-Gehan statistic = 9.17 $p < .05$), as well as for nonviolent offending (Wilcoxon-Gehan statistic = 6.12 $p < .05$), but not for violent offending AUC .67 any offender, .62 nonviolent offending, .67 violent offending Regression indicates that LSI-R did not predict beyond number of previous offenses or age at first offense CAT correlated with any (.27 $p < .05$) and violent offending (.23 $p < .05$), not nonviolent AUC for CAT .68 for any, .61 for nonviolent and .72 for violent CAT did not add to age at first offense or number of prior convictions

Authors' conclusions	Demonstrated predictive usefulness of these tools, but caution that it appears most of the predictive value comes from two historical factors (age at first offense and number of convictions) Self-reports appropriate for female offenders
Strengths and Weaknesses of Study	Strength: Variety of analyses, correlations, ROC, survival and regression Weaknesses: Did not examine individual items or other risk factors not captured by these tools. What is difference between CAT and LSI-R that one predicts violence and the other does not, no differences examined between violent and nonviolent offenders (sample too small)

6. Title of study	Poverty, State Capital and Recidivism Among Women Offenders
Author	Holtfreter, K., Reisig, M.D. & Morash, M.
Year of publication	2004
Country of study	United States
Participants	134 female felons from a community sample, either beginning probation or parole supervision
Study Objective	Examine the effects of poverty and state support on recidivism in female offenders. Additionally, does the LSI-R adequately reflect female poverty as it relates to recidivism.
Intervention (if any)/ Outcome	No Intervention Re-arrest and violation, coded from official records , 6 months follow up
Location/setting	Community
Methodology	Interviews with female offenders serving community orders. IVs: Minority, Education, poverty (according to census guidelines), risk as measured by the LSI-R
Results	Poverty and re-arrest $r = .20$ $p < .05$, re-arrest and financial (measured by the LSI-R, $.19$ $p < .05$). Poverty and re-arrest OR 5.46, poverty and violation 15.36 vs LSI-R and re-arrest OR 1.07 and violation OR 1.09. Discrepancies maintained when all in same equation to (OR.105 vs 4.59/12.66 for re-arrest/violation). The odds ratio indicates that providing state resources to address poorwomen offenders' immediate needs decreases the odds of recidivism by 83%
Authors' conclusions	Poverty may have a greater marginalizing effect on females, and thereby increase their risk of re-offending. General support for gendered pathways. Risk scores by the LSI-R were weak and suggest the LSI-R does not account for the unique factors related to females and poverty.
Strengths and Weaknesses of Study	Strength: Poverty operationalized along census guidelines Weaknesses: Short follow-up time, some differences between groups and drop outs.

7. Title of study	Suicidal Behaviour and Criminal Behaviour Among Female Offenders: The Role of Abuse and Pathology
Author	Kimonis, E.R., Skeem, J., Edens, J.F., Douglas, K.D., Lilienfeld, S.O., & Poythress, N.G.

Year of publication	2010
Country of study	United States
Participants	266 female offenders either incarcerated in prison, or housed in a substance abuse treatment facility
Study Objective	To examine if externalizing and internalizing psychopathology mediates the relationship of abuse and criminal behaviour and suicide related behaviours, and if use of the PCL-R will predict SRB and criminal behaviour
Intervention (if any)/ Outcome	No intervention Recidivism, gathered from the FBI crime database after a one year follow up and SRB from interview data.
Location/setting	Prison/Substance Abuse Treatment Centre (community)
Methodology	Measures: Child Abuse and Trauma Scale (CATS, measure abuse), Personality Assessment Inventory (PAI, to measure internal and external psychopathology), PCL-R antisocial scale (lifetime criminality, using the three factor model)
Results	Used Structural Equation Modeling: Externalizing psychopathology partially mediates the relationship between abuse and lifetime criminality, and externalizing postdicted criminality. No variables predicted recidivism within the follow-time frame, including the PCL-R.
Authors' conclusions	Abuse contributes to externalizing psychopathology, which in turns contributes to SRB and criminality. Questions the use of PCL-R to predict recidivism in female offenders, in line with other literature.
Strengths and Weaknesses of Study	Weaknesses: Cross-sectional design, possibly differences. Abuse and SRB measures based upon retrospective recall and abuse types were not examined separately

8. Title of study	Predictors of Recidivism in Serious Female Offenders
Author	Loucks, A & Zamble, E.
Year of publication	1999
Country of study	Canada
Participants	100 incarcerated females at a Canadian Federal Penitentiary in Ontario
Study Objective	To examine predictors of recidivism in female offenders that have been previously shown to be predictive in male offenders
Intervention (if any)/ Outcome	No intervention Criminal history, and 5 year follow up using official information from a federal database for any offending
Location/setting	Prison/Community
Methodology	Data was collected via records, interviews and self-report inventories and classified into four categories; social, personal, criminal and maladaptive behaviour. Multiple regression was used to assess relevance to historical offending. Recidivism was also measured 5 years later

Results	Psychopathy and anger were most predictive of historical violence. Psychopathy, past criminal history and substance abuse by father most predictive at 5 year follow up. Lifestyle and Personality as equally important in predicting, Sexual abuse predictive to previous offending and psychological abuse related to general offending, personality factors were more predictive. No significance for drug abuse, family problems.
Authors' conclusions	Similarities between male and female risk factors, therefore treatment targets found effective for males, should be useful with women, as should specific interventions
Strengths and Weaknesses of Study	Strength: Long follow up, appears to use a variety of variables, (but there is a lack of description of this) Weaknesses: No stats in this study, mostly descriptive/narrative, impossible to assess effect sizes, methodology etc.

9. Title of study	Cross Validation of the Self-Appraisal Questionnaire: A Tool for Assessing Violent and Nonviolent Recidivism in Female Offenders
Author	Loza-Fanous, A., Wagdy, L., Lee Hong N., Shahinfar, A.,
Year of publication	2005
Country of study	United States and Singapore
Participants	91 incarcerated female offenders in US, 183 incarcerated females in Singapore
Study Objective	Examination of the predictive ability of the SAQ, a self-assessment tool used in male offending populations to predictive recidivism, in female offenders. It was additionally evaluate the validity of this scale in three ethnic groups, White, Black and Asian.
Intervention (if any)/Outcome	No intervention Re-incarceration by a new offense
Location/setting	Prison/Community
Methodology	Two groups (US and Singapore) completed LSI-R and SAQ. One year follow up. T-tests conducted to ensure no differences in ethnic groups
Results	Singapore Study: SAQ correlated with recidivism (.24 $p < .01$), AUC .70, comparisons of failure between low, moderate and high risk (failure as a return to prison) was significant between the three groups
Authors' conclusions	SAQ is appropriate for female offenders, and can be applied to a variety of ethnic groups. Performs similarly on both male and female offending groups.
Strengths and Weaknesses of Study	Strength: Ethnic considerations taken into account Weaknesses: Short follow up, did not examine individual items or constructs within the SAQ, small sample, data collected unevenly across samples.

10. Title of study	Level of Service Inventory – Revised with English Women Prisoners: A Needs and Reconviction Analyses
Author	Palmer, E.J. & Hollin, C.R.
Year of publication	2007
Country of study	England

Participants	150 female offenders serving custodial sentences in England
Study Objective	Examination of LSI-R in English female offenders (first study to do this)
Intervention (if any)/Outcome	No intervention Re-conviction data, collected via National Offenders database, gathered 2.5 years after release from prison.
Location/setting	Prison/Community
Methodology	LSI-R completed via file review and interviews. Reconviction data only available to 96 offenders
Results	<p>Criminal History, Education/Employment, Alcohol/Drug Problems, and LSI-R total, $p < .001$; Financial, Accommodation, Leisure/Recreation, and Companions, $p < .01$; and Family/Marital, $p < .05$ correlated with past offending.</p> <p>Women had higher level of need on family and marital relationships, accommodation, comparisons, alcohol and drug problems, and emotional and personal issues.</p> <p>LSI-R predictive of reoffending $\chi^2(1, N = 96) = 19.62, p < .001$. Significance of LSI-R remained when age and previous convictions were controlled for.</p> <p>Survival analysis confirmed that lowest security band had the longest time for community failure, whereas highest band had the shortest time. LSI-R score also predicted time in community $\chi^2(1, N = 96) = 21.23, p < .001$</p>
Authors' conclusions	Demonstrates validity of the LSI-R in an English, female offending population
Strengths and Weaknesses	Weaknesses: small sample, validation only. Did not examine subscale scores.

11. Title of study	Risk of Repeat Offending Among Violent Female Offenders with Psychotic and Personality Disorders
Author	Putkonen, H., Komulainen, E.J., Virkkuen, M., Eronen, M., & Lonqvist, J.
Year of publication	2003
Country of study	Finland
Participants	132 females charged with homicide or attempted homicide, sent for psychiatric examination between 1982 – 1992
Study Objective	Examination of rates of recidivism in female homicide offenders compared to other violent female offenders and to analyse explanatory variables for recidivism Explanatory variables were age at index offense, psychiatric diagnosis, history of criminal activity, alcohol or drug dependency
Intervention (if any)/Outcome	No intervention Repeat offending and how soon it occurred after release.
Location/setting	Prison/Community

Methodology	Retrospective study design. Subject were followed until 1999. Data was collected from National Offender Databases, forensic examination reports,
Results	Offending mostly likely occurred after offense or soon after release (within 2 years). Criminal activity prior to index best predictor of recidivism, psychiatric diagnosis not significant (cox regression). Personality disorder increased risk, psychosis decreased risk of recidivism. Odds ratio 2.92 drug/alcohol dependency, 1.83 for personality disorder, 9.36 prior criminal history, under 25 1.62 Young age at index and drug or alcohol dependency also a risk factor
Authors' conclusions	Male and female violence similar (recidivism rates after murder similar, even for additional murder offenses). Repeat offending appears to occur soon after release, similar to male offenders No differences found between homicide sample and violent sample, therefore conclusion drawn that these results are generalizable to any violent offender women All sample had PD
Strengths and Weaknesses of Study	Strength: Very long follow-up time, up to 12 years for some participants. Comprehensive, nationwide sample covering 10 years of female homicide offenders Weaknesses: small cell sizes for some variables, therefore unable to fully analyse, and unable to divide into subgroups (e.g. repeat offenders versus non repeat offenders). Authors point to generalizability issues to countries such as United States due to a distinct homogenous population found in Finland

12. Title of study	Assessing Recidivism Risk Across Female Pathways to Crime
Author	Reisig, M.D., Holtfreter, K. & Morash, M.
Year of publication	2006
Country of study	United States
Participants	235 females under a community supervision order in Minnesota and Oregon
Study Objective	Evaluate the LSI-R's performance across various subgroups offenders, as classified by Daly's (1992, 1994) feminist theory pathways to crime. Attempt to prove that the LSI-R is not a gender neutral risk assessment tool. Uses presentence reports, officer logs and interview data
Intervention (if any)/ Outcome	No intervention Recidivism, defined by: violation of order, re-arrest, reconviction or revocation of order (all collapsed into one recidivism category).
Location/setting	Community
Methodology	400 women interviewed 2 – 3 times over an average time of 11 months. Data was collected via presentence reports, officer logs and interview data, as well as the administration of the LSI-R (final sample n = 235). To classify into pathways, detailed biographies were written on each

	<p>participant and double coded to ensure reliability. Categories are street woman, drug-connected, harmed and harming, battered, economically motivated and unclassified (those that did not fit into a category). Participants also classified into risk groups based upon LSI-R scores</p>
Results	<p>LSI-R valid predictor in economically motivated group (.24, $p < .05$) Did not predict in gendered pathways (street woman, drug, harmed or battered). Over classified the harm and harming group, and under classified the drug group. LSI-R predicted for unclassified sample</p>
Authors' conclusions	<p>LSI-R does not predict for women following "gendered" pathways into crime. Encourages further exploration of unique female risk factors and typologies.</p> <p>LSI-R misclassified the risk level of these groups, as well, may lead to a misattribution of resources in the real world.</p>
Strengths and Weaknesses of Study	<p>Strength: Focuses on specific female risk factors and typologies, does not just use male risk factors.</p> <p>Weaknesses: Large attrition (42%), unknown if this attrition has produced a more biased sample, sometimes small cell sizes due to multiple groups, so results need to be interpreted with caution.</p>

13. Title of study	General Risk and Need, Gender Specificity and the Recidivism of Female Offenders
Author	Rettinger, J.L. & Andrews, D.A.
Year of publication	2010
Country of study	Canada
Participants	411 women serving time in a provincial custody centre or serving a supervision order in the community
Study Objective	<p>Examination of the gender neutral factors from the LSI-R and gender specific factors proposed by feminist theories in the prediction of recidivism</p> <p>LSI-R, interview</p>
Intervention (if any)/ Outcome	<p>No intervention</p> <p>Recidivism, defined by: reconviction for a general or violent offense, collected from RCMP national databases.</p>
Location/setting	Prison/Community
Methodology	<p>Data collected from community and prison files, mean follow up time of 57 months.</p> <p>One group, not divided into any sub samples.</p> <p>Analyses first examined risk levels as per the LSI-R, then risk factors from the LSI-R and then gender specific variables as cited by feminist oriented literature in this area.</p>
Results	<p>Risk/Need ($r = .63, .45, .54$) for violence, general and number of offenses, AUCs of .86 for violence and .87 for general offending Nagelkerke R^2 from the binary logistic analysis was 90% Generally, validity was maintained for female offenders with a less serious offending history, although it was less robust relative to women with more</p>

	<p>serious criminal histories. All LSI-R RNR areas associated with recidivism ($r = .45 - .61$). Age/race did not predict beyond the LSI-R Abuse unrelated to either offending, self-harm related to violent offending only, but did not contribute when LSI controlled for</p>
Authors' conclusions	<p>The big four (criminal history, antisocial associates, cognitions and pattern) accounted for most of the predictive value, beyond age, race, SES, single parenthood, abuse, and emotional/distressing experiences</p> <p>Some gender specific factors noted in incarcerated women, and in low risk/need woman, financial factors and personal misfortune played a role.</p> <p>Concerns over RNR and gender neutral approaches to recidivism not supported.</p>
Strengths and Weaknesses of Study	<p>Strength: Focuses on specific female risk factors and typologies, does not just use male risk factors, wide range of factors considered.</p> <p>Weaknesses: Archival information may have reduced depth of information, such as abuse history, resulting in missed dimension of effect beyond just "yes/no". This is a weakness of all gendered factors collected in this study.</p>

14. Title of study	Psychopathy and Treatment Response in Incarcerated Female Substance Abusers
Author	Richards, H.J., Casey, J.O. & Lucente, S.W.
Year of publication	2003
Country of study	United States
Participants	404 incarcerated female offenders in a maximum security prison (64% African American, 35% White, 1% Asian/Hispanic), all enrolled in a one year substance abuse program
Study Objective	To examine the construct of psychopathy in female offenders and its relationship to treatment compliance, effectiveness and recidivism.
Intervention (if any)/ Outcome	Heuristic System for treatment and assessment of substance abuse, Therapeutic communities and Housing status. In addition to treatment variables; Institutional infractions, recidivism data using official records for 4 years.
Location/setting	Prison/Community
Methodology	Participants recruited to treatment, and then randomly assigned to a treatment condition. PCL-R/PCL:SV scored by file review and clinical interview. Offenders with scores higher than 30 were removed from program.
Results	Violence and Factor 1 (.0748 - .194 $p < .05$, $p < .001$), Violence and Factor 2 (- .003 - .125 $p > .05$, $p < .001$) High psychopathy in community for significantly less days compared to low psychopathy ($F(2, 236) = 7.93$, $p < .005$)
Authors' conclusions	Psychopathy associated with infractions within the program (including violence) and less free days before re-arrest. Most of this risk was contained within Factor 1 scores.

	Support using the PCL-R in female offenders as it demonstrated predictive ability for offending, institutional misconduct and treatment factors.
Strengths and Weaknesses of Study	Weaknesses: Planned restriction to range of psychopathy, multiple treatment groups with no control, and differing results between groups (results not collapsed), could only capture follow up data on 75% of sample, possible attrition issues, loss of statistical power, and loss could have been biased regarding psychopathy

15. Title of study	Psychopathy and Recidivism in Female Offenders
Author	Salekin, R.T., Roger, R., Ustad K.L., Sewell, K.
Year of publication	1998
Country of study	United States
Participants	78 females incarcerated in a Texas Prison
Study Objective	To examine the relationship between psychopathy and recidivism in a sample of female offenders (to see if it predicts as well as it has been demonstrated to predict in male offenders) Measured by the PCL-R, Personality Assessment Inventory (PAI), Personality Disorder Examination to assess for Antisocial Personality
Intervention (if any)/ Outcome	No intervention Criminal history was measured by official records for both child and adult offending
Location/setting	Prison/Community
Methodology	Participants were approached in prison and assessed with the three measures. Recidivism data was collected 12 – 16 months after assessment (m = 14 months), using official state records.
Results	Only Factor 1 scores were correlated to reoffending (.26 p<.05), not total or Factor 2 scores. Antisocial scale on the PAI was correlated (.26 p<.05) as was aggression subscales (.29 - .25 p<.05) ROC .64 for PCL-R psychopathy and reoffending, odds ratio of 1.06 for PCL-R Discriminant analysis, PCL-R had a classification accuracy of 62.9%, Factor 1 accounted for most of this
Authors' conclusions	Psychopathy was a modest predictor in females for future offending, especially when compared with male offending samples. The authors point to the lower prevalence and disparate symptoms pattern indicating differences in female psychopathy compared to men
Strengths and Weaknesses of Study	Strength: Multiple analyses used (ROC, discriminant analyses, odds ratio, and survival analysis) to assess relationships with psychopathy and

	<p>recidivism.</p> <p>Weaknesses: Official records were for one state only, thereby missing potential out of state offending. Follow up time was only one year so perhaps restrictive, smallish sample size.</p>
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16. Title of study	Gendered Pathways: A Quantitative Analysis of Women Probationer's Pathways to Incarceration
Author	Salisbury, E.J., & Van Voorhis, P.
Year of publication	2009
Country of study	United States
Participants	313 women on probation in Missouri, newly convicted with sentences at least 2 years in length.
Study Objective	Statistical examination of three differing pathways to incarceration and offending in a sample of female offenders
Intervention (if any)/ Outcome	No intervention Prison admission, measured at the 2 year point, for any crime or order violation
Location/setting	Community
Methodology	<p>Examination of 3 pathways: childhood victimization which leads to substance abuse and mental illness, relational pathway based upon dysfunctional relationships, and social and human capital pathway, with financial difficulties and other challenges in self-efficacy.</p> <p>Multiple measures used: Employment and financial needs scale, Educational Strengths scale, Family Support scale, History of Substance Abuse scale, Dynamic Substance Abuse scale, History of Mental Illness scale, Current Depression/Anxiety scale, Childhood and Adult Victimization scale, Self-Efficacy scale, Relationship Dysfunctional Scale</p>
Results	<p>Childhood Victimization Model: substance abuse and depression/anxiety ($r = .16 - .23$ $p < .05$) correlated with prison admission. Path analysis indicates that childhood abuse is an important indirect factor leading to prison admission (leading to MH problems, DA problems, depression and anxiety).</p> <p>Relational Model: Self efficacy, depression/anxiety, and substance abuse all related to prison admission ($r = -.18 - .23$ $p < .05$). Path analysis showed that these variables were mediated by relationship dysfunctional, reduced self efficacy and adult victimization</p> <p>Social and Human Capacity Model: Educational strength, self-efficacy and employment problems related to prison admission ($r = -.19 - .21$ $p < .05$). Path analysis indicates that in addition to gender neutral theories to prison admission, gender specific factors mediated included self-efficacy, relationship dysfunction and reduced family support</p>

Authors' conclusions	Reason to believe that women offenders create unconventional pathways to crime, based upon life experiences that are not seen in men. Childhood abuse created indirect effects from its impact that lead to offending. Relationship dysfunction places women at an indirect risk for offending. Lack of support in family relationship and self-efficacy also affect the capital pathway, demonstrating gendered and non-gender utility of this model.
Strengths and Weaknesses of Study	Strength: Examines gender specific variables, one of the first studies to examine women's paths to offending qualitatively Weaknesses: Sample not divided into subtypes (offending, non-offending)

17. Title of study	The Predictive Validity of a Gender-Responsive Needs Assessment: An Exploratory Assessment
Author	Salisbury, E.J, Van Voochris, P., Spiropoulos, G.V.
Year of publication	2009
Country of study	United States
Participants	156 female offenders, admitted to the department of corrections between October 2000 and January 2001.
Study Objective	To assess a gender responsive need assessment, in conjunction with the LSI-R. This study extends the follow-up time of an initial study by the prison service and University of Cincinnati.
Intervention (if any)/ Outcome	No intervention
Location/setting	US prison and community follow-up for 44.2 months
Methodology	Data gathered from intake assessments, including the LSI-R, custody classification scale, measure of mental health and gendered responsive scale, women follow from prison discharge for up to 44.2 months. Two outcomes analysed, new offences and technical violation
Results	Rearrests correlated with a number of items from the LSI-R and Gender Specific needs assessment; educational history/employment (.14***), adult victimisation (.17***), adult emotional abuse (.22***), harassment (.15***) and technical violations: parental stress (-.18***), LSI total score .20*** and LSI-R factors .12* - .21*** LSI-R total for any failure .21***, LSI-R plus gender responsive predictors .21***, LSI-R plus abuse items .22***
Authors' conclusions	Gender-responsive needs, such as self-esteem, mental health, and relationships, were not significantly correlated with the community recidivism data. In fact, mental health and self-esteem were not significantly related to any of the correctional outcomes, however, adult victimisation, self-efficacy and parental stress were risk factors for women upon release. Furthermore, the addition of gender responsive factors improved performance of the LSI-R
Strengths and Weaknesses of Study	Strengths: Focuses on gender-responsive factors compared to traditional risk assessment items (e.g., criminal history). Weaknesses: Small sample, only correlational study, no inferential statistics

18. Title of study	Female Sex Offender Recidivism: A Large Scale Empirical Analysis
Author	Sandler, J.C. & Freeman, N.J.
Year of publication	2009
Country of study	United States
Participants	1466 female offenders convicted of a sexual offense in New York State
Study Objective	Examination of offending prior to index offense, rates of recidivism following index offense, and factors associated with recidivism.
Intervention (if any)/ Outcome	No intervention Recidivism, defined by re-arrest for a particular crime (any, felony, violent, sexual – focus on sexual recidivism)
Location/setting	Prison/Community
Methodology	Computerized criminal history file of every female arrested of a sexual offense between 1986 and 2006. History was then searched back to 1970. Eventually focused on only those convicted of a sexual offense. 5 year follow up
Results	sexually recidivated were more likely to have at least one prior misdemeanour conviction, $\chi^2(1, N = 1,466) = 15.5, p \leq .001$, at least one prior felony conviction, $\chi^2(1, N = 1,466) = 21.5, p \leq .001$, and at least one prior drug conviction, $\chi^2(1, N = 1,466) = 25.5, p \leq .001$, than those offenders who did not Recidivists more likely to have prior offenses compared to non-recidivists (drug offense most likely). Sexual recidivists most likely to be involved in promoting prostitution in a minor. Child victim 1.44 OR For sexual recidivists, child victims, prior offenses (non-violent), and age (older) increased risk.
Authors' conclusions	Female sex offender recidivists similar to males; did not confine crimes to sexual crimes, more like general offenders. Further supported by the fact that many of the re-offenders were for promoting prostitution, which has a financial gain. Increased offender age contrary to male risk factors where raised age associated with decreased risk, as is no additional risk for violence history; therefore risk assessment tools like the STATIC 99 may not be applicable.
Strengths and Weaknesses of Study	Strength: Very large sample Weaknesses: Lack of some info such as offense details as archival information, relied upon police and justice data. Small number of recidivists (n = 32). Limited number of variables examined, none of which were gender specific, limited data because of reliance on computerized data.

19. Title of study	The Relationship Between Child Sexual Abuse and Female Delinquency and Crime: A Prospective Study
Author	Siegal J.A & Williams, L.
Year of publication	2003
Country of study	United States
Participants	411 women; 206 women who were victims of child sexual abuse and a control group of 205 women with no history of abuse (83% African American, from low SES background)
Study Objective	To examine the effects child sexual abuse on females and their criminal and delinquent histories In addition to abuse, family court conflicts and runaways were also measured.
Intervention (if any)/ Outcome	No intervention Criminal history was measured by official records for both child and adult offending
Location/setting	Community
Methodology	Prospective study: Participants were gathered from emergency room attendance for sexual abuse between 1973 – 1975 and either them or their parents were interviewed. Control group was a matched sample in age, race and date seen in the emergency room, gathered from the same hospital Demographics were controlled for when there was an association with outcome to ensure the effect of the abuse was being measured
Results	Victims had greater rates of any type of offending compared to control group (McNemars $X 6.224 p=.01$), and the largest difference was found for drug related crime. Child abuse increased odds of arrest for offending by 1.955 compared to control
Authors' conclusions	Childhood sexual abuse victims were significantly more likely than their matched counterparts to be arrested as an adult for offenses, even after other family difficulties were controlled for. These offenses were most likely drug or violent offenses and the authors hypothesize that these are reactions to the abuse (either escape, or misplaced anger)
Strengths and Weaknesses of Study	Strength: Large sample with extremely large follow-up time. Weaknesses: Sample not necessarily generalizable to a larger population (demographic and offending differences compared to norms), there were limits on the information gathered included additional historical factors such as family, peers and crime, potential confounds from gathering a sample from emergency room admissions, due to the large follow-up time, it is possible people moved out of the city, died etc. No data was collected on this so no offending just indicates no offending in this city/state.

20. Title of study	Achieving Accurate Pictures of Risk and Identifying Gender Responsive Needs: Two New Assessments for Women Offenders
Author	Van Voorhis, P., Salisbury, E., Wright, E., Bauman, A.
Year of publication	2008
Country of study	United States
Participants	3 probation, prison and 2 pre-release samples across three states of female offenders (total N = 1626)
Study Objective	To develop and validate two new risk measures for women offenders that combine traditional risk need principles and feminist criminology theories regarding the unique pathways to female offending. Two key questions: 1) Are gender specific factors such as mental health, abuse and self-esteem related to future offending and 2) Does adding gender specific factors to gender neutral items improve predictive validity
Intervention (if any)/ Outcome	No intervention Misconduct for inmates, new charges for those who were released, with varying follow up times from 6 months – 24 months depending on site of data collection.
Location/setting	Prison and Community
Methodology	Construction of two assessments, one which supplements existing risk assessments (e.g. LSI), and a stand-alone assessment. Multi stage projects conducted in three states. Assessments were informed by literature, and focus groups with correctional officers, treatment practitioners and female offenders. Gender specific risk factors based upon literature: Abuse/trauma, mental health, intimate relationships, self-esteem, self-efficacy, parental stress, housing, safety and poverty.
Results	Study 1: Gender Neutral Factors Criminal history (.14 - .32 p<.10 - .01), Antisocial attitudes (.18-.22 p<.05-.10), Family conflict (.21 - .15 p<.05 - .01), financial/employment (.09 - .22 p<.10 - .01), Education/employment (.18 - .27 p<.01), financial (.13 - .25 p<.05 - .01), education (.11 - .19 p<.10 - .01), accommodation (.14 - .25 p<.05 - .01), leisure/recreation (.09 - .13 p<.10, .05), antisocial associates (.12 - .23 p<.10 - .01), mental health history (.14 - .22 p<.10, .01), substance abuse (.16 - .33, p<.05 - .01) Gender Specific Factors: Housing safety (.21-.23 p<.01), adult victimization (.09 - .18 p<.10 - .01), childhood victimization (.11 - .24 p<.10, .01), parental stress (.12 - .24 p<.10, .01), Anger (.13 - .15 p<.05, .01), anxiety/depression (.18 - .23 p<.01), psychosis (.16 - .31 p<.05, .01), relationship dysfunction (.09 - .28 p<.10 - .01), family support (-.08 - -.20 p<.10 - .01), self-efficacy (-.22 - .14 p<.10-.01), self-esteem (-.22 - -.08 p<.10 - .01). Study 2: Gender responsive on own r=.27-38**, AUCs .74(with gender neutral items r=.16-.31**, AUCs .59-.72).
Authors' conclusions	Many of the gender-responsive factors were predictive of offense-related outcomes for women. In institutional settings these included, child abuse, loss of personal power in relationships, family support, relationship support, parental stress, family conflict, and current symptoms of depression and psychosis. The effects of adult victimization and self-efficacy, are less consistent and vary by sample

	<p>In community settings, many of the same factors are related to future offending (e.g., parental stress, family support, anger, depression and other symptoms of mental illness). Additional risk factors emerged in community settings, such as unsafe housing, educational assets, self-esteem and self-efficacy. Effects of child abuse and adult victimization were more obvious among samples which evidenced more extensive criminal histories</p> <p>Traditional predictors of criminal behaviour (similar to those typically seen with men) were also found to be predictive of both prison misconducts and recidivism. Criminal attitudes, however, were not as consistently associated with outcome measures (as it is with men).</p> <p>The most important risk factors among those typically seen on the current generation of dynamic risk/needs assessments included substance abuse, mental health, housing, and education, employment, and financial issues – therefore “big four” not supported (history, attitudes, personality, and associates)</p> <p>Importance of Strengths (self-esteem, self-efficacy, family and relationship support, and financial and educational assets)</p> <p>Study 2: Adding gender responsive items improved predictive value of traditional gender neutral items.</p>
Strengths and Weaknesses of	<p>Weaknesses: variables not measured consistently across all sites, thus ns are widely varying. Small p values used</p> <p>Strengths: Considers a wide range of gender specific factors</p>

21. Title of study	Predictors of Revocation among Substance Abusing Women Offenders
Author	Verbruge, P., Nunes, K., Johnson, S. & Taylor, K. (Corrections Canada)
Year of publication	2002
Country of study	Canada
Participants	486 federally sentenced female offenders with substance abuse problems, released conditionally between 1995 and 2000
Study Objective	To examine factors associated with either revocation of release or reoffending Factors to be examined are offense history, Community Intervention Scale factors, and substance abuse treatment
Intervention (if any)/Outcome	Intervention: Any substance abuse program while incarcerated Outcome: Revocation of release to violation of conditions, non-violent offending, violent reoffending
Location/setting	Canadian federal prison, and community
Methodology	Follow up was until expiry of condition or revocation (mean 247 days for those returned to prison or mean 685 days for those that remained in the community)
Results	32% reoffended, mostly with a non-violent crime Age negatively correlated with reoffending (-.11 p<.05) Nonviolent offenses correlated with new nonviolent offenses (.16 p<.001) and Robbery correlated with future violent offense (.21 p<.001) Employment and Community factors on CIS related to nonviolent offending (.11, .10 p<.05), no factors related to violent reoffending Treatment had no effect on recidivism

Authors' conclusions	Prior offense history was most predictive for reoffending, especially robbery and theft related offenses. They conclude that secondary motives need to be considered (e.g. monetary) in the commission of these reoffenses
Strengths and Weaknesses of	<p>Strength: Large sample that is likely representative of Canadian woman released from federal institutions, also an adequate follow up time</p> <p>Weaknesses: As relationships with recidivism were small, no inferential statistics were conducted. Additionally, the CIS is not a widely used tool so generalizability is poor. No additional risk factors gathered other than offence history and CIS variables.</p>

22. Title of study	Understanding the Risk Factors for Violence and Criminality in Women: The Concurrent Study of the PCL-R and HCR-20
Author	Warren, J.I., South, S.C., Burnette M.L., Rogers, A., Friend, R., Bale, R. & Van Pattern, I.
Year of publication	2005
Country of study	United States
Participants	132 female inmates in a maximum security prison
Study Objective	Examine the effectiveness of the HCR-20 and PCL-R in predicting violent and non-violent offenses, including institutional misconduct.
Intervention (if any)/ Outcome	<p>No intervention</p> <p>Violence and other offense categorized by: violent offenses, potentially violent crimes, crimes against persons, property, minor crimes, drug crimes, sex crimes</p>
Location/setting	Prison
Methodology	Measures include PCL-R and HCR-20, scored using interview and file data. Crimes coded retrospectively, no follow-up (postdicted).
Results	<p>Highest PCL scores associated with shop-lifting, least likely with murder, highest HCR20 scores associated with robbery, lowest with murder.</p> <p>PCL-R and HCR-20 total non-violent crime ($r^2 = .11$), murder ($r^2 = .08$)</p> <p>AUC for PCL (.3 - .71), first-degree murder and minor crimes respectively</p> <p>AUC for HCR20 (.3 - .74), first degree murder and minor crimes respectively</p> <p>– not a good predictor for violent crimes, but yes for non-violent crimes</p>
Authors' conclusions	<p>Both HCR20 and PCLR correlated to one another, but demonstrated an inability to postdict violence occurring female offenders. Better at prosdictive ability for non-violent offenses.</p> <p>“mini psychopathy”(scores between 20-30) career criminals, multiple non-violent offenses, larceny etc.</p> <p>Robbery only crime associated with high PCL and HCR20, authors wonder if this is a more male crime, and theorize differences in violence between men and woman (e.g. reactive versus instrumental).</p> <p>Cautions use of risk assessment tools created on men, on woman.</p>
Strengths and Weaknesses	Weaknesses: Small sample size, retrospective study, lack of follow up or community data, generalizability to community or less secure populations

23. Title of study	Personality Disorders and Violence among Female Prison Inmates
Author	Warren, J.I., Burnette M.L., South, S.C., Chauhan, P., Bale, R., & Friend, R.
Year of publication	2002
Country of study	United States
Participants	261 females incarcerated in a maximum security prison
Study Objective	The relationship between personality disorders and violence in incarcerated female offenders
Intervention (if any)/ Outcome	No intervention Violent behaviour assessed three ways 1) incarceration for a violent offense, 2)The Prison Violence Inventory (PVI), 3) institutional infractions for violence. Non-violent offending was also coded as an outcome
Location/setting	Prison
Methodology	Measures include the Brief Symptom Inventory (BSI), Barratt Impulsivity Scale (BIS), Prison Adjustment Questionnaire (PAQ), Structured Clinical Interview for DSM-IV (SCID-II) 50 females who did not have cluster B traits made up the control group
Results	Using logistic regression, Cluster A PD predicted current conviction of a violent offense (OR 2.5), and current conviction of prostitution (OR 6.35). Cluster B predicted self-reported violence within institution (OR 3.26); cluster C predicted incarceration for regulatory crimes (OR 1.96). Specific cluster b diagnosis: Narcissism predicted current any violent offense (OR 7.57), ASP and Borderline predicted self-reported institutional violence (3.18, 2.88), Histrionic not related to any crimes.
Authors' conclusions	Differing patterns of associations between personality disorders and criminality and violence. Authors point to the chronicity of PD and its variety of behaviours such as impulsivity, recklessness, substance abuse and problem relationships that likely contributed to behaviours that to lead to offending and incarceration. Also noted the high levels of comorbidity between PDs, and somewhat unexpected finding of Cluster A PD related to any violent conviction, including homicide and prostitution. Authors conclude this is underpinned by bizarre thinking and anonymous behaviour (e.g. sexual activity).
Strengths and Weaknesses of Study	Weaknesses: Potential generalizability issues as incarcerated woman may indicated those at highest risk, with a variety of historical risk factors (versus a community sample).

24. Title of study	Psychological Risk Markers in Violent Females
Author	Weizman-Henelius, G., Viemero, V. & Eronen, M.
Year of publication	2004
Country of study	Finland
Participants	61 violent female offenders who were incarcerated in Finland, gathered in over the 12 months of the year 2000
Study Objective	Identify psychological risk markers for violence in females.
Intervention (if any)/ Outcome	No intervention Violent and non-violent criminality, gathered from official records, files and reports at various institutions
Location/setting	Prison
Methodology	Interview, file data and PCL-R. Two groups, violent group and normal control without any violence history, matched for age and education level. Structured interview assessing factors found in literature to be associated with female violence, demographics and violence data, PCL-R, SCID-II, WAIS
Results	Repeat violent offender had early age at first violent offense compared to first time violent offender and less emotionally close to victim compared to first time offender Recidivists had witnessed violence more often and had divorced parents, no differences in history of victimization. Recidivists were more likely to have PD (antisocial or Borderline) and had higher PCL scores compared to first time offenders. Offenders compared to non-offenders were more likely to have divorces parents, witnessed abuse, foster home or detention centre, suffered adult abuse, substance abuse, SH history, suffered partner related abuse No relationship with childhood sexual abuse for either group
Authors' conclusions	Women who behave violently have experience more adverse experiences in childhood and adulthood compared to non-offenders also have more psychopathology and stressful life experiences compared to non-offenders.
Strengths and Weaknesses of Study	Strength: Nationwide Weaknesses: Potentially biased sample due to voluntary nature, perhaps not generalizable to countries like US, difficulties selecting sample size that also had adequate stress in their lives without violent offending

Appendix I. Coding Guide and Coding Sheets

GENERAL CODING GUIDELINES AND DEFINITIONS

- **Code all information possible, don't leave blanks.**
- **If information is not known, indicate DK**
- **Circle, indicate all that applies to the individual. Make notes if necessary. Ensure all information is non-identifying.**

1. Historical offense details: Code the violent offense that most closely precedes the individual's CURRENT hospital admission. Indicate approximate date of this offense as well as hospital admission. If individual has been transferred to this hospital from another, treat as one hospital admission and code violent offense that most recently precedes initial hospital admission.

Provide a details of the violent offense that is coded, e.g. the type of crime, individuals involved, injury (if any), weapon use and other circumstances. Ensure this information is NON-IDENTIFYING, with no names of persons or places.

Also include whether a weapon was used for the Index offence, or at any other time. Indicate the weapon.

A **violent offense is defined as** "actual, attempted, or threatened harm to a person(s). Threats of harm must be clear and unambiguous, rather than vague statements of hostility. Violence is behaviour which obviously is likely to cause harm to another person(s). Behaviour which would be fear-inducing to the average person may be counted as violence (e.g. stalking). The resulting damage to the victim is not the defining feature...rather it is the act itself. All sexual assaults should be considered. Less clear examples may include kidnapping, arson, reckless driving because of the threat of harming others." (Webster, Douglas, Eaves, Hart, 1997, p 24-25).

INSTRUMENTAL AND REACTIVE CODING: See guide by Cornell et al., 1996 for items 1 – 9

Indicate whether the individual has a history of any instrumental violence, or has only engaged in reactive violence in the past. Use the Cornell et al. (1996) guide to help define instrumental or reactive offending.

2. Risk/Protect factors prior to violent offense: Code these factors for events/situations prior to the individual's historical violent offense.

1. Indicate if the individual has experience any abuse in childhood, adulthood or both. Indicate type of abuse (all) and perpetrators (e.g. father, family friend, stranger etc.). Count the number of abuse incidents. If the individual experienced the same type of abuse (e.g. sexual), but from different people, count it as separate incidents (e.g. an individual was sexually abused by a babysitter as a child, sexually abuse by an adult male as a child, and physically abused by their step-mother as a child. Count 3 incidents of childhood abuse, and 0 adult).

2. Write down all current diagnosis (from admission paperwork). Indicate presence of queried diagnoses if they are included in the admission paperwork. Do not include historical diagnoses.

3. Indicate if there is a history of any difficulties with depression and/or anxiety. Does not have to be formally diagnosed.

4. Indicate presence of self-harm or suicide attempts, and mode of harm. Do not include suicidal ideation only. Code self-harm/suicide attempts on a scale of 1 – 5

1 – Has used a single, non-violent attempt to commit suicide/self-harm (e.g. overdose, superficial cutting) on a few occasions. Risk of death was likely low

2 – Has used either a single, or two different non-violent attempts to commit suicide/self-harm, on several occasions, but not necessarily current or regular. Risk of death was likely low

3 – Has used at least one violent attempted suicide/self-harm (e.g. stabbing, serious cutting). Is likely mixed with other less violent means of self-harm (e.g. ligature). Represents a relatively stable pattern of behaviour, but is not necessarily current. Moderate risk of actual death/serious harm

4 – Has used multiple methods of suicide attempt and self-harm, including violent (weapon) and non-violent (drinking noxious substance) means. Behaviour is chronic and attempts are serious and imminently life threatening. Risk is likely very current.

5 – Represents the most extreme severity of suicide attempts, including multiple (4-5) varying means of attempted suicide and self-harm, including both violent and non-violent means. Attempts are varied and serious and risk is ongoing. Risk of actual death is high.

5. Indicate the presence of a significant and regular substance use history (including diagnoses of substance abuse disorder, or regular use). Do not code if use is sporadic, or occurred only once. Indicate age regular use began, and substances used most often. Code severity on a 1 – 5 scale

1 – Recreational use only, likely only uses one substance (e.g. cannabis). Minimal impact, but still misuse.

2 – Recreational use, but uses more than one substance (e.g. cannabis and alcohol). Impact is still minimal, but misuse is evident

3- Use has become problematic and chronic. Uses multiple substances regularly (2-3), usually at same time. Likely has a criminal charge/conviction for drug use. This may also be coded if excessive use has caused difficulties, but this is in the past (several years ago) and no further difficulties noted. Coded as a 3 to reflect a history of problematic substance use.

4 – Individual uses multiple drugs regularly (3-4) and use is chronic. Likely has encountered criminal difficulties for use, including bringing drugs into hospital. Difficulties with use should be current

5 – Individual uses multiple drugs (4 – 5), including drugs from a variety of categories (e.g. stimulants, opiates, hallucinogens, alcohol). Individual likely has a diagnosis of substance misuse and misuse is not historical. May also be experiencing health problems from use and use high risk using behaviour (e.g. IV drug use). This category should represent those with extreme and extensive substance misuse problems.

6. Indicate if the individual has relied on crime (e.g. trafficking, theft) or other illegal means (e.g. prostitution) to support self. Also indicate periods of homelessness.

7. Indicate if the individual has a history of unstable employment history (defined as many short term job placements) or has never worked. Item is coded as no if the individual has a period of stable work history (e.g. longer than one year). Code 0 if there is evidence of stable employment, 1 if they have

never worked, or have been employed with one or two short jobs. Code 2 is there is evidence of chronic unstable employment history, including multiple, short-term jobs, and/or difficulties with jobs that lead to the individual being fired or terminated.

8. Indicate if the individual has a history of relationship dysfunction with a significant other. This could be many short term relationships (e.g. one night stands), or dysfunction indicated by cheating, abuse or chronic arguing. Code 0 if they have been engaged in a stable, long-term relationship (does not have to be current). Code 1 if the individual has never engaged in a long-term relationship or has only ever had multiple short-term (one night stands). Code 2 of an individual has been engaged in short-term and unstable relationships, likely with an element of abuse (any) or dysfunction (e.g. cheating).

9. Indicate yes/no if the individual has poor school performance (e.g. failing grades), placed in a special school (e.g. due to behaviour disorders, residential schools, school for learning disabilities), has a learning disability or left school prior to finishing. Also indicate if the individual has a history of significant truancy, has been described as a loner or having few friends in school, or has a history of being bullied.

10. Family factors: Indicate yes/no for witness family violence and parental difficulties such as criminal history, mental health problems and substance abuse.

.11/12. Attempt to capture offense history prior to historical violent offense. Be as detailed as possible.

13. Demonstrates procriminal/antisocial attitudes, including those that condone violence, aggression or general criminality. May be evident by ongoing criminal activity, including while under supervision or in prison/hospital. Presence of long forensic history, Antisocial Personality, ongoing rule breaking and disregard of others as evidence for this item.

13b. Indicate severity of violence has low (0) or high (1). This item is concerned with the intent of harm, as well as with actual harm caused. Any life threatening injury is coded as high, as well as most offences using weapons. Threats (without a weapon), or minor assaults may be coded as low severity. As included in low may be few instances of violence (e.g. one or two), where high severity may be repeated and frequent violence against others.

13b. Versatility is concerned with the breadth of crime committed by an individual. The following coding scheme is taken from Hare (2003). For offences that involve more than one crime, code the most serious offense.

1. Theft/Burglary: Including possession of stolen property, shoplifting.

2. Robbery: Also includes any extortion to get money, property.

3. Drug offences: Including possession, trafficking etc.

4. Assaults: Includes all level of assaults (ABH, GBH) as well as threats.

5. Murder: Including all level of murder, including wounding with intent or any assault with intent to endanger life.

6. Possession of weapons, including firearms or bladed weapons.

7. Sexual offences: Any sexual offense, contact or non-contact. Includes prostitution.

8. Major driving offences: Including driving while intoxicated, dangerous driving, hit and run.
9. Fraud: Using stolen credit cards, forgery, forged documents etc.
10. Escape: Includes breaking out of prison or hospital, breach or probation, failure to appear or attend court, or failure to comply with probation orders.
11. Kidnapping: Includes confinement, hijacking, hostage taking.
12. Arson: Any act of setting fire.
13. Obstruction of justice: Includes perjury, assaulting a police officer, resisting arrest.
14. Crimes against the state, such as treason, smuggling or terrorist activities.
15. Miscellaneous including minor charges such as vandalism, criminal damage, public disorder, mischief, minor driving offences. Includes living off the avails of prostitution.

14. Lack of remorse/responsibility may be indicated by the ongoing engagement in crime despite statements of remorse. This individual will likely demonstrate a lack of concern for the negative consequences of their actions (both criminal and non-criminal). They may exhibit rationalisation or minimisation of their actions, deny or minimise their responsibility and blame others for their problems.

14b. Callousness/Lack of Empathy: Indicates an individual who demonstrates a callous disregard for the thoughts, feelings and rights of others. This individual is likely only concerned with their own needs. May bully or mock others, especially those more vulnerable than them. May engage in excessive violence beyond what is needed to commit the crime, or predatory crimes (outside of those driven by delusional behaviour). May include animal cruelty (as a child especially).

15. Impulsivity (coded as low/moderate/high) may refer to behavioural or emotional impulsivity (indicate which). This may be evident by dramatic shifts in mood or demeanour. These individuals may respond (or over respond) to slights and appear inconsistent or difficult to predict. Behaviour may be unpremeditated, spur of the moment or on a whim. Look for evidence in crimes, lifestyle, jobs, relationships.

16. Prior supervision failure (coded as low/moderate/high): Evidence of failures during institutional or community supervision. Likely leads to readmission or recall to hospital or prison. May include reoffending, escape or absconsion, failure to attend for treatment/probation, revocation of parole or CTO. Also include medication non-compliance, or drug/alcohol use when prohibited.

17. Indicate if individual has antisocial peers and/or unstructured leisure time.

Protective Factors

1. Self-efficacy: The belief that the individual has mastery over their own life, including control of their future and attainment of future goals.

Self-esteem: An individual's evaluation of themselves as a competent and worthy person.

2. Educational strengths: Indicate FSIQ if possible. Individual has completed secondary school with further college or university education. May have advanced training in a particular area, or be currently pursuing a higher level of education. Take into consideration what is advanced for a particular individual (e.g. college courses may be advanced for some).
3. Positive family support: Evidence by the positive and ongoing interaction with any family member. Support needs to be positive, and not dysfunctional or enmeshed. Family should be supportive of prosocial goals, including engagement in treatment plans.
4. Employment stability: Stable employment in one area, one job for an extended period of time. Take into consideration the individual's own limitations – the employment does not necessarily have to be fulltime or challenging, just stable and consistent engagement.
5. Involved in structure/organised activities: Involvement in ANY activity that is structured, organised and prosocial (not gang or crime related). May include classes, church, social groups, volunteering, peer support groups. Need to attend on a somewhat regular basis.
- 6/7/8. Positive, prosocial significant other and/or friends, associates. May include engagement in activities as highlighted in 5. Individual should demonstrate a positive and secure attachment, involvement with any of these individuals for 8 to be coded yes.
9. Positive attitude towards intervention/authority: May be linked to other items (e.g. therapeutic engagement). Demonstrates a willing engagement with remediation attempts, intervention or authority.
10. Resilient personality: Evidence that the individual is flexible, hopeful, tough and positive when facing difficulties. They may demonstrate an ability to “roll with the punches” and bounce back after experience adversity.

Institutional Outcomes

3. Institutional Misconduct Incident Scales: Code at least a year from current date. If less available, code all present. If more available, code 1 year from present date. Indicate start and end dates to length of time frame can be computed.

Indicate number of incidents at each level, for each category over the specified time frame.

4. START Strength and Risk scores: Copy down Strength and Risk scores for most recent START on file.

ID Number:
Gender:
Date:
DOB:
Ethnicity:
Historical Offense Details
Date of Index Offense (approx., index offense is the offense that preceded current hospital adm):
Date of current hospital admission:
Index offense details (robbery, assault etc.)
Weapon Use (index) YES NO indicate type:
Weapon Use (anytime) YES NO indicate type:
1. Instrumental/Reactive Coding (Cornell, Warren, Hawk, Stafford, Oram & Pine, 1996) for Historical Offense Only
1. Instrumental v Reactive/Hostile (code actual event, not just subject's claim) 4 - Clearly instrumental aggression (e.g., crime-related incident, drug deal) 3 - Primarily instrumental, some reactive qualities 2 - Primarily reactive hostile aggression, some instrumental qualities 1 - Clearly reactive hostile aggression (e.g., interpersonal conflict)
2. Planning (include plans for robbery, burglary, etc.) 4 - extensive planning (detailed plan or preparation, rehearsal) 3 - moderate planning (contemplation of action for more than 24 hours) 2 - some planning (action within 24 hours, some plan or preparation) 1 - very little or no planning (acts during argument or fight, no preparation)
3. Goal-Directedness (consider goals like financial gain, not just revenge) 4 - Clear, unequivocal goal-directedness (include shooting during crimes) 3 - Primary goal-directedness, with presence of other motives 2 - Secondary goal-directedness, in presence of other primary motives 1 - No apparent goal-directedness (motive to injure victim, retaliate, defend)
4. Provocation (includes provocation prior to incident, use subject's perception) 6 - Exceptionally strong provocation (repeated assault, severe abuse) 5 - Very Strong provocation (assault) 4 - Strong (break-up of a romantic relationship, threat of major life change) 3 - Moderate provocation (serious argument or dispute, threat of assault) 2 - Mild provocation (insult, minor argument, confrontation with police) 1 - No apparent provocation
5. Arousal (mental state, primarily code anger, but also consider other affects like fear) 4 - Enraged, furious, described as "out of control" or "irrational" or panicked (brief state) 3 - Angry, mad, extremely frightened (can be protracted state) 2 - Excited, very nervous, anxious, scared 1 - Calm or tense at most

6. Severity of violence (consider actual harm to victim, not subject's intention)						
7 - Extreme homicide (multiple victims or multiple fatalities, mutilation)						
6 - Homicide						
5 - Severe injury (e.g., lasting impairment or life-threatening injury, some rapes)						
4 - Serious injury, requiring substantial hospital treatment (e.g, broken limb, rape, gunshot)						
3 - Minor injury (e.g., bruises, minor medical treatment, attempted rape)						
2 - Assault without injury						
1 - No assault (e.g., threatened with weapon)						
7. Relationship with victim (if 2 or more victims, code both)						
5 - Very close relationship (immediate family member, romantic partner)						
4 - Close relationship (friend, relative, dating partner, etc.)						
3 - Specific relationship (teacher, babysitter, etc.) or Between friend and acquaintance						
2 – Acquaintance						
1 – Stranger						
8. Intoxication						
4 - Severe intoxication (large quantities of alcohol or drugs, very impaired)						
3 - Intoxicated						
2 - Mild intoxication (e.g., 1 or 2 drinks)						
1 - Not intoxicated						
9. Psychosis (reality testing, not mood)						
4 - Substantial psychotic symptoms (e.g., bizarre or pervasive delusions)						
3 - Moderate psychotic symptoms (intermittent voices or delusions)						
2 - Non-psychotic disturbance (e.g., depersonalized)						
1 – Not psychotic						
Any history of instrumental violence? YES NO (reactive only)						
5. START Risk assessment (most recent) date:						
		Strength	Risk		Strength	Risk
1	Social skills			12. Material resources		
2	Relationships			13. Attitudes		
3	Occupational			14. Medication adherence		
4	Recreational			15. Rule adherence		
5	Self-care			16. Conduct		
6	Mental State			17. Insight		
7	Emotional state			18. Plans		
8	Substance use			19. Coping		
9	Impulse control			20. Treatability		
10	External triggers					
11	Social support					
Institutional Outcomes						
4. START Incident Severity Scales – (Indicate date range, earliest – latest date of incident)						
Verbal Aggression (Overt Aggression Scale (OAS); Yudofsky, Silver, Jackson & Endicott, 1986)						COUNT
	1. Makes loud noises, shouts angrily					
	2. Yells mild personal insults (e.g. you're stupid)					

	3. Curses viciously, uses foul language in anger, makes moderate threats to other/self	
	4. Makes clear threats of violence towards others or request help to control self	
Physical Aggression Against Objects (OAS; Yudofsky et al., 1986)		
	5. Slams door, scatter clothing, makes a mess	
	6. Throws objects down, kicks furniture without breaking it, marks the wall	
	7. Breaks objects, smashes windows	
	8. Sets fire, throws objects dangerously	
Physical Aggression Other People (OAS; Yudofsky et al., 1986)		
	9. Makes threatening gestures, swings at people, grabs at clothes	
	10. Strikes, kicks, pushes, or pulls hair (without injury)	
	11. Causes mild-moderate physical injury (e.g. bruises, sprain, welts)	
	12. Causes severe physical injury (e.g. broken bones/deep lacerations/internal injury)	
Self-Harm (OAS; Yudofsky et al., 1986)		
	13. Picks/scratches skin, hits self, pulls hair (with no/ minor injury only)	
	14. Bangs head, hits fist into objects, throws self onto floor or into objects	
	15. Small cuts or bruises, minor burns	
	16. Mutilates self/makes deep cuts/bites that bleed/ internal injury/fracture/loss of consciousness/teeth	
Suicide (Brief Psychiatric Rating Scale – BPRS-E; Venture et al., 1993; Jail Screening Assessment Tool, Nicholls et al., 2005)		
	17. Occasional feelings of being tired or living or better off dead. Abstract and general thoughts, occasional suicide ideation, denies intent of plans	
	18. Reports persistent suicide ideation resulting in distress, denies plans	
	19. Reports frequent and persistent suicide ideation and intent. Voices concrete plans or makes low lethality suicidal gestures or attempts OR impulsive suicide attempt using low lethality means or with high likelihood of rescue	
	20. Describes specific detailed plan/intent. Searches for appropriate means/time OR potentially serious attempt using lethal means and/or in secluded environment.	
Unauthorised Leave		
	21. Returns late from unescorted day or weekend leave w/o prior notification or explanation	
	22. Returns/is returned from unescorted day/weekend leave 24hours+	
	23. Absconds from escorted leave/day/weekend leave	
	24. Escapes from hospital and it returned by police, or is not returned	
Sexually Inappropriate (Mikkelsen & Stelk, 2001; Croker, 2005)		
	25. Sexually threatening, inappropriate or suggestive statements/behaviours	
	26. Exposes genitals to others, masturbates in public or is voyeuristic	
	27. Sexually touches or fondles others non-consensually	
	28. Has coercive sexual activities (rape with/without penetration, oral, genital, or anal) with/without physical beating	
Stalking (Stalking Assessment and Management – SAM; Kropp & Hart, 2003)		
	29. Non-contact (talking about, loitering near, following victim)	
	30. Contact (phoning, sending notes, talking to victim in person)	

	31. Aggressive, threatening contact (threats to damage property, threats to self, harm victim, verbal abuse)	
	32. Violent contact (physical aggression, destruction to property). Stalking involves supervision violation	
Substance Use		
	33. Occasional user of mild (alcohol/marijuana) without physical, behavioural, emotional, relationship, occupational, or educational impairment	
	34. Occasional substance use	
	35. Frequent substance use leading to significant physical, behavioural, emotional, relationship or occupation or educational impairment	
	36. Regular, compulsive use leading to severe physical, behavioural, emotional, relationship, occupational or educational impairment	

2. Risk Factors (coded prior historical offense) Check/Circle all that apply			
1	History of Abuse Y / N	Total number of abuse types:	
	Childhood Y / N	Sexual / Physical / Emotional / Neglect	Perpetrator:
	Adulthood Y / N	Sexual / Physical / Emotional / Neglect	Perpetrator:
2	Mental Health Diagnosis (indicate all if multiple): _____ Personality Disorder (indicate if no personality disorder, or presence of traits only) : _____		
3	Anxiety/Depression difficulties (does not have to be formally diagnosed) Y / N		
4	History of deliberate self-harm Y / N specify mode: _____		
	History of suicide attempt Y / N specify mode: _____ Suicide attempt severity (1 -5)		
5	Substance abuse history Y / N Age began regular use:		
	Substance used most often (indicate all): _____ Severity (1-5) _____		
6	Poverty (relying on benefits or illegal income, prostitution, indicate which) Y / N Income source:		
7	Unstable employment history (or no employment history. Indicate unstable or none) 0 1 2		
8	Intimate Relationship dysfunction (e.g. spouse, common-law, significant other) 0 1 2		
9	Poor school performance Y / N		
	Placed in special school Y / N	History of being bullied Y / N	
	Learning disability Y / N	"Loner" Y / N	
	Left school prior to finishing Y / N	Truancy Y / N	
10	Placed in care (indicate age at first placement) Y / N age: _____		
	Witnessed family violence Y / N		

	Parental history of substance abuse Y / N	Who/what:
	Parental history of mental illness Y / N	Who/what:
	Parental criminal history Y / N	Who/what:
	Regular visits with child Y / N	
11	Adult history of violence (20+) Y / N	offense:
	Adolescent history of violence (age 13 – 19) Y / N	offense:
	Childhood history of violence (12 and under) Y / N	offense:
12	Adult history of non-violent (20+) Y / N	offense:
	Adolescent non-violent (age 13 – 19) Y / N	offense
	Childhood non-violent (12 and under) Y / N	offense
13	Antisocial/Procriminal attitudes Y / N	Hx of violence severity: Versatility:
14	Lack of Remorse/Responsibility Y / N	Callousness/Lack of Empathy Y / N
15	Impulsivity 0 1 2	behavioural or emotional or both
16	Prior Supervision Failure Y / N	Absconding Meds Reoffending Minor/Serious
17	Antisocial Peers Y / N	Unstructured Leisure time Y / N
Protective Factors (coded before index offense)		
1	Strong Self Efficacy Y / N Strong Self-Esteem Y / N	2 Educational Strengths Y / N IQ (FSIQ): _____
3	Positive family support Y / N	4 Employment Stability Y / N
5	Involved in structured/organised activities (church, drama group etc.) Y / N	6 Married/Stable partner Y / N
7	Positive Peer Network Y / N	8 Positive attachments to prosocial individual(s) Y / N
9	Positive attitude to intervention or authority Y / N	10 Resilient Personality traits Y / N

Appendix J. Coding Guide for Violent Incidents

**CODING GUIDE FOR VIOLENT INCIDENTS:
INSTRUMENTAL VERSUS HOSTILE/REACTIVE AGGRESSION**

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This is the coding guide we used to code violent crimes as instrumental or hostile/reactive forms of aggression. The coding guide is being made available to researchers. This is not an established clinical instrument and is intended only for research purposes. For additional information, see the published study:

Cornell, D. G., Warren, J., Hawk, G., Stafford, E., Oram, G., & Pine, D. (1996). Psychopathy of instrumental and reactive violent offenders. *Journal of Consulting and Clinical Psychology, 64*, 783-790.

October 4, 1996. These coding guidelines were developed for research purposes with grant support of the Harry Frank Guggenheim Foundation. Project researchers include Drs. Dewey Cornell, Gary Hawk, and Janet Warren. We thank Ed Stafford, Guy Oram, and Denise Pine for their contributions to this project. These guidelines are subject to revision. Email dcornell@virginia.edu.

CODING GUIDE FOR VIOLENT INCIDENTS

The primary distinction is between instrumental and reactive/hostile aggression. Originally we attempted to make this distinction through a global rating based on the rater's overall evaluation of the incident. However, some violent incidents had both instrumental and reactive/hostile qualities. For example, a person planned and carried out a robbery, but in the course of the robbery became angry when a storekeeper resisted him, and shot him in anger. Therefore, we decided to give priority to the presence of instrumental qualities, based on the theory that reactive hostility is the more common, pervasive form of aggression in criminal behavior and that instrumental aggression in criminal behavior represents a more pathological development and elaboration of the capacity for reactive aggression.

In addition to coding for the presence of instrumental and reactive aggression, the coders will make secondary ratings of these specific aspects of the aggressive act:

- 1) **Planning** - degree of premeditation or preparation for aggression
- 2) **Goal-directedness** - degree to which aggression is motivated by some external gain or incentive such as money
- 3) **Provocation** - degree of provocation, frustration or threat from victim
- 4) **Arousal** - degree of anger experienced by aggressor
- 5) **Severity of violence** - degree of injury to victim
- 6) **Relationship to victim** - closeness of relationship between victim and aggressor
- 7) **Intoxication** - intoxication on drugs or alcohol during incident
- 8) **Psychosis** - presence of psychotic symptoms during incident

These secondary ratings reflect aspects of the aggressive act which are not necessarily independent of one another. For example, planning and goal-directedness may be correlated. However, each of the components can be distinguished conceptually from the others and we are able to identify specific cases which support these distinctions.

In our discussion of various aggressive acts, the secondary ratings (especially the first four) seem to tap characteristics which contribute to the primary distinction between reactive and instrumental aggression, but these ratings are not equivalent to it. We used the secondary ratings to examine several questions:

- 1) Is there a stable combination or set of decision rules for the secondary ratings which is equivalent to the primary distinction?
- 2) Do the secondary ratings permit a sub-classification or refinement of the primary distinction which improves upon it?

Subjects may be dishonest, inaccurate, or incomplete in their account of the offense. Consider all available sources. Code what you believe to be true, what actually happened. If the subject claims self-defense, but all other available information indicates otherwise, and the subject is of doubtful credibility, code what you believe to be true.

Instrumental Aggression

The two cardinal characteristics of instrumental aggression are goal-directedness and planning. The instrumental aggressor acts to obtain a readily apparent goal such as power, money, sexual gratification, or some other objective beyond inflicting injury on the victim. Examples of instrumental aggression include shooting a police officer in the course of a bank robbery, stabbing a homeowner during a burglary, and strangling a rape victim. Rape is almost always instrumental. Sadistic aggression is a special form of instrumental aggression in which the objective is some form of pleasure (e.g., power or sexual gratification) that stems from the infliction of pain or attainment of dominance over the other person. Instrumental aggression is initiated as a means to an end rather than as an act of retaliation or self-defense.

Instrumental aggression often involves planning or preparation. However, in some cases instrumental aggression involves relatively little planning, such as in the case of a criminal who engages in an opportunistic offense (e.g., unexpected opportunity to rob someone that involves assaulting the victim). In some cases, a subject may plan a robbery or burglary, and when something goes wrong, engages in an act of aggression, such as shooting someone in order to get away. In these cases the coder should consider that the subject's plans included the possibility of violence, even if there was no specific plan to shoot someone.

Instrumental aggression usually involves little or no provocation by the victim. In some cases subjects may be "provoked" into violence in the course of another crime, e.g., a robbery victim who insults the subject or resists the robbery in some way. These acts are still considered instrumental acts of aggression.

Instrumental aggressors are motivated by goals, not emotions. It follows that their level of emotional arousal, especially anger, is relatively low or is secondary to the act. Some instrumental aggressors try to calm themselves prior to an offense through drug use or drinking. In extreme cases, instrumental aggressors are not angry toward their victims and may have a cold, "business-like" attitude about their behavior. Nevertheless, many less hardened instrumental aggressors are nervous and highly aroused while committing a crime, even though it is not their arousal which motivates their actions.

The term "instrumental" should not be defined so broadly that it encompasses all aggressive behavior simply because there is a definable goal or desired outcome to the aggression, such as warding off an attacker or taking revenge on someone. Aggressive

behavior whose purpose is to defend against a threat or in some way respond to provocation is defined as reactive/hostile aggression. If the subject is engaged in some form of criminal activity, such as a drug deal, associated violence is almost always instrumental.

Reactive/Hostile Aggression

The two cardinal characteristics of reactive/hostile aggression are reaction to provocation and arousal of hostility. Aggressive behavior represents reactive hostility to the extent that the aggressor reacts to perceived provocation or threat by the victim. The provocation may include insults, threats of aggression, or other acts that frustrate and anger the aggressor. The objective of the aggressive act is to harm or injure the victim, in response to feelings of hostility that may include a mixture of anger, resentment, fear, or other distress aroused by the victim's actions. Typically, there should be some form of interpersonal conflict (argument, dispute, prior aggression) between aggressor and victim. In many cases the aggressor and victim have a prior relationship as relatives or acquaintances, but in other cases there is no prior relationship and the parties are strangers to one another.

Bear in mind that reactive/hostile aggression can involve extended time-frames. For example, an abused family member may plan an ambush to rid the family of the abuser. The most recent episode of abuse could be long before the aggressive reaction. The critical issue is that the reactive/hostile subject is reacting to an interpersonal conflict that arouses hostility.

- 3 - Clearly instrumental aggression
- 2 - Both reactive and instrumental qualities are prominent
(subsequently these cases combined with instrumental group)
- 1 - Clearly reactive hostile aggression

Do not consider "displaced anger" or any form of displacement from one situation to the next. Many instrumental offenders may be angry at someone else, upset over a failed relationship, lost job, etc. This provides a context for understanding the person, but it should not enter into the determination that a person engaged in instrumental versus reactive/hostile violence. A person who sets out to rob a bank is committing an instrumental act, regardless of any prior life stress. A person who is embroiled in an intense interpersonal conflict with the victim will commit a reactive/hostile offense.

SECONDARY SCALES FOR VIOLENT INCIDENTS**Planning**

How much did the subject plan or prepare for the aggressive action? Consider both the length of time involved in preparation and the amount of preparatory activity.

- 4 - extensive planning (detailed plan or preparation, rehearsal)
- 3 - moderate planning (contemplation of action for more than 24 hours)
- 2 - some planning (action within 24 hours, some plan or preparation)
- 1 - very little or no planning (acts during argument or fight, no preparation)

Assign a (1) to actions which are part of contiguous event, such as pausing during an argument to grab and load a gun. Assign a (2) if there is a break in the argument where the subject leaves the scene of an argument and returns with a gun later in the day.

Goal-Directedness

How much is the subject motivated by an external incentive, goal, or objective beyond just responding to provocation or threat? Readily apparent goals include money, power, sexual gratification, or some other external goal of benefit to the aggressor. Do not include such goals as self-defense, escaping harm, taking revenge for previous aggression, or acting out of frustration.

- 4 - Clear, unequivocal goal-directedness (include shooting during crimes)
- 3 - Primary goal-directedness, with presence of other motives
- 2 - Secondary goal-directedness, in presence of other primary motives
- 1 - No apparent goal-directedness (motive to injure victim, retaliate, defend)

Provocation

Did the victim's actions provoke the subject's aggression? Include provocation that occurred prior to the incident (e.g., prior abusive treatment).

- 6 - Exceptionally strong provocation (repeated assault, severe abuse)
- 5 - Very Strong provocation (assault)
- 4 - Strong (break-up of a romantic relationship, threat of major life change)
- 3 - Moderate provocation (serious argument or dispute, threat of assault)
- 2 - Mild provocation (insult, minor argument, confrontation with police)
- 1 - No apparent provocation

Consider the subject's personal point of view, even if the subject has a delusional perception of threat.

Arousal

How much emotional arousal, especially anger, did the subject experience at the time of the aggressive act? Just code the subject's mental state, not attitude toward the victim.

- 4 - Enraged, furious, described as "out of control" or "irrational"
- 3 - Angry, mad, extremely frightened (can be protracted state)
- 2 - Excited, very nervous, anxious
- 1 - Calm or tense at most

Arousal at the (4) level is extraordinary, and should be of short duration.

Severity of violence

- 7 - Extreme homicide (multiple killing, mutilation)
- 6 - Homicide
- 5 - Severe injury (lasting impairment or life-threatening injury, some rapes)
- 4 - Serious injury, requiring substantial hospital treatment (broken limb, rape, gunshot)
- 3 - Minor injury (e.g., bruises, minor medical treatment, attempted rape)
- 2 - Assault without injury
- 1 - No assault (e.g., threatened with weapon)

Relationship with victim

Code the degree of contact or closeness between aggressor and victim. The scores listed here are typical scores. Some relationships may require higher or lower scores than indicated. Generally give maximum scores to immediate family members, unless there has been prolonged separation or lack of contact that substantially alters the relationship (e.g., father who never lived in the home, mother who turned over care of child to grandmother). A step-parent may receive the same score as a parent if there appears to have been similar bonding and contact since early childhood. Code based on duration and closeness of relationship.

- 5 - Very close relationship (immediate family member, romantic partner)
- 4 - Close relationship (friend, relative, dating partner, etc.)
- 3 - Specific relationship (teacher, babysitter, etc.)
- 2 - Acquaintance
- 1 - Stranger

Intoxication

Code whether the subject was intoxicated at the time of the aggressive incident. Consider alcohol and other drugs. Primary concern is degree to which the person is impaired or has clouded consciousness. Consider how much intoxication played a role in the subject's actions.

- 4 - Severe intoxication (large quantities of alcohol or drugs, very impaired)
- 3 - Intoxicated
- 2 - Mild intoxication (e.g., 1 or 2 drinks)
- 1 - Not intoxicated

Generally code (4) for subjects who are "falling down drunk" or extremely impaired by multiple substances, etc.

Psychosis (reality testing, not mood)

- 4 - Substantial psychotic symptoms (e.g., bizarre or pervasive delusions)
- 3 - Moderate psychotic symptoms (intermittent voices or delusions)
- 2 - Non-psychotic disturbance (e.g., depersonalized)
- 1 - Not psychotic

Generally code (4) for subjects who are very impaired by psychosis and have active symptoms. What you might call "falling down psychotic." Code (3) for individuals with mild, residual symptoms or more circumscribed symptoms that do not seriously impair everyday functioning. A man with a paranoid delusion about the victim who is nevertheless able to hold a job and function in many social situations is a (3). An actively psychotic man living on the street is probably a (4).

Subject _____

Coder

VIOLENT INCIDENT CODING SHEET

Incident date:

Instrumental v Reactive/Hostile (code actual event, not just subject's claim)

- 4 - Clearly instrumental aggression (e.g., crime-related incident, drug deal)
- 3 - Primarily instrumental, some reactive qualities
- 2 - Primarily reactive hostile aggression, some instrumental qualities
- 1 - Clearly reactive hostile aggression (e.g., interpersonal conflict)

Planning (include plans for robbery, burglary, etc.)

- 4 - extensive planning (detailed plan or preparation, rehearsal)
- 3 - moderate planning (contemplation of action for more than 24 hours)
- 2 - some planning (action within 24 hours, some plan or preparation)
- 1 - very little or no planning (acts during argument or fight, no preparation)

Goal-Directedness (consider goals like financial gain, not just revenge)

- 4 - Clear, unequivocal goal-directedness (include shooting during crimes)
- 3 - Primary goal-directedness, with presence of other motives
- 2 - Secondary goal-directedness, in presence of other primary motives
- 1 - No apparent goal-directedness (motive to injure victim, retaliate, defend)

Provocation (includes provocation prior to incident, use subject's perception)

- 6 - Exceptionally strong provocation (repeated assault, severe abuse)
- 5 - Very Strong provocation (assault)
- 4 - Strong (break-up of a romantic relationship, threat of major life change)
- 3 - Moderate provocation (serious argument or dispute, threat of assault)
- 2 - Mild provocation (insult, minor argument, confrontation with police)
- 1 - No apparent provocation

Arousal (mental state, primarily code anger, but also consider other affects like fear)

- 4 - Enraged, furious, described as "out of control" or "irrational" or panicked (brief state)
- 3 - Angry, mad, extremely frightened (can be protracted state)
- 2 - Excited, very nervous, anxious, scared
- 1 - Calm or tense at most

Severity of violence (consider actual harm to victim, not subject's intention)

- 7 - Extreme homicide (multiple victims or multiple fatalities, mutilation)
- 6 - Homicide
- 5 - Severe injury (e.g., lasting impairment or life-threatening injury, some rapes)
- 4 - Serious injury, requiring substantial hospital treatment (e.g. broken limb, rape, gunshot)
- 3 - Minor injury (e.g., bruises, minor medical treatment, attempted rape)
- 2 - Assault without injury
- 1 - No assault (e.g., threatened with weapon)

Relationship with victim (if 2 or more victims, code highest)

- 5 - Very close relationship (immediate family member, romantic partner)
- 4 - Close relationship (friend, relative, dating partner, etc.)
- 3 - Specific relationship (teacher, babysitter, etc.) or Between friend and acquaintance
- 2 - Acquaintance
- 1 - Stranger

Intoxication

- 4 - Severe intoxication (large quantities of alcohol or drugs, very impaired)
- 3 - Intoxicated
- 2 - Mild intoxication (e.g., 1 or 2 drinks)
- 1 - Not intoxicated

Psychosis (reality testing, not mood)

- 4 - Substantial psychotic symptoms (e.g., bizarre or pervasive delusions)
- 3 - Moderate psychotic symptoms (intermittent voices or delusions)
- 2 - Non-psychotic disturbance (e.g., depersonalized)
- 1 - Not psychotic

CODER RELIABILITY STUDIES

We completed two reliability studies on the classification of instrumental and reactive offenders and the accompanying eight offense scales. In the first study, these scales were applied to a sample of 20 criminal defendants evaluated at the UVA Forensic Clinic. For five judges, the intraclass correlation coefficient for the scale distinguishing instrumental from reactive violence was .98. For 18 subjects all five judges agreed on violence type, and for the remaining two subjects four of five judges were in agreement. The other eight scales are listed below:

- 1) Planning (degree of planning and preparation prior to violence) .97;
- 2) Goal-directedness (presence of goals such as obtaining money) .94;
- 3) Provocation (subject's perception that victim provoked violence) .81;
- 4) Arousal (subject's degree of anger and excitement during violence) .83;
- 5) Severity of violence (degree of injury to victim) .97;
- 6) Relationship with victim (subject-victim relationship) .92;
- 7) Intoxication (alcohol or drug intoxication during violence) .96;
- 8) Psychosis (presence of psychotic symptoms during violence) .96.

In the second reliability study, we applied the slightly modified scales to records of 33 violent offenders incarcerated at the Staunton Correctional Center, a medium security state prison in Virginia. For 2 judges, the intraclass correlation for instrumental/reactive distinction was .93. The intraclass correlations for the other scales were all above .75, except for two scales: 1) the correlation for the provocation scale was .50, apparently because the records did not provide consistent information on the victim's behavior prior to the violent incident; and 2) the psychosis scale could not be used because none of the inmates were described as psychotic at the time of the offense.

Offense characteristics of instrumental and reactive violence. We examined the association between the instrumental/reactive classification and each of the eight offense variables for 50 Forensic Clinic defendants. These analyses were conducted for descriptive purposes to refine and clarify our conceptualization of instrumental and reactive aggression. Briefly, these analyses indicated that no single offense characteristic is synonymous with the instrumental/reactive distinction. The characteristics most strongly associated with instrumental violence are presence of a clearly definable goal, little or no provocation by the victim, and comparatively low levels of emotional arousal at the time of the offense. In contrast, reactive violence is associated most strongly with a lack of goal-directedness, little or no prior planning, provocation by the victim, and comparatively greater emotional arousal at the offense. Reactive violence more often involves family member victims, while instrumental violence is more often associated with acquaintances or strangers.

Categorical versus dimensional classification. We have found that *specific violent incidents* can be readily and reliably classified categorically as reactive or instrumental. Relatively few offenses pose classification difficulties, and in those cases we give greater weight to the presence of instrumental characteristics such as goal-directedness. However, the lifetime classification of violent **offenders** who have committed multiple offenses raises additional problems. Some offenders have extensive histories of reactive (or instrumental) violence while others have little or no history of violence prior to their recent offense. These cases suggest it may be viable to place subjects along a continuum for severity of reactive (or instrumental) violence.

Moreover, some offenders have a history of both reactive and instrumental violent offenses. (We have conducted detailed case studies of subjects with "mixed histories" of both instrumental and reactive violence, and it is clear that such individuals tend to be more similar to purely instrumental offenders, particularly in the presence of psychopathic characteristics.) A study by Vitiello, *et al.* (1990) found that violent juveniles fell into two groups, one an affective or reactive group, but the other a mixed group with both affective and predatory or instrumental aggression. Since persons can engage in both reactive and instrumental aggression, there is no reason why some offenders would not engage in both reactive and instrumental violence.

An alternative to the lifetime classification of offenders into instrumental, reactive, and mixed groups is to treat instrumental and reactive violence as separate dimensions. We are giving further consideration to this possibility. Our work linking instrumental violence to individual psychopathy is referenced below.

Cornell, D. G., Warren, J., Hawk, G., Stafford, E., Oram, G., & Pine, D. (1996). Psychopathy of instrumental and reactive violent offenders. *Journal of Consulting and Clinical Psychology*, *64*, 783-790.

**Offense Characteristics of Reactive
and Instrumental Violent Offenders**

	Reactive N=32	Instrumental N=18
Planning		
None	23	6
Some	6	11
Extensive	2	1
Goal Directedness		
Clearly goal-directed	0	12
Mixed motives	2	6
No apparent goal-directedness	30	0
Provocation by Victim		
Strong	6	0
Moderate	16	1
Weak or none	10	17
Arousal at Offense		
Enraged	5	0
Angry	21	1
Excited/tense	3	9
Calm	1	4
Harm to Victim		
Homicide	24	8
Serious injury	6	4
Not serious	2	6
Relationship to Victim		
Very close (family)	19	2
Close (friend)	7	2
Acquaintance	5	6
Stranger	1	8
Intoxicated at Offense		
Intoxicated	12	9
Some use	2	0
No use	18	9
Psychotic at Offense		
Clearly psychotic	5	0
Some disturbance	2	3
Not psychotic	25	15

Note: Classification based on most recent offense.
Incomplete information on some variables.

Appendix K. Levenson Self-Report Psychopathy scale

How to fill out the questionnaire

Below is a list of statements. Please read each statement very carefully and rate how strongly you agree or disagree with it by placing a tick in the relevant box. There are no right or wrong answers, or trick questions.

IN ORDER FOR THE SCALE TO BE VALID, YOU MUST ANSWER EVERY QUESTION.

		<i>Disagree Strongly 1</i>	<i>Disagree Somewhat 2</i>	<i>Agree Somewhat 3</i>	<i>Agree Strongly 4</i>
1.	Success is based on survival of the fittest; I am not concerned about the losers.				
2.	For me, what's right is whatever I can get away with.				
3.	In today's world, I feel justified in doing anything I can get away with to succeed.				
4.	My main purpose in life is getting as many goodies as I can.				
5.	Making a lot of money is my most important goal.				
6.	I let others worry about higher values; my main concern is with the bottom line.				
7.	People who are stupid enough to get ripped off usually deserve it.				
8.	Looking out for myself is my top priority.				
9.	I tell other people what they want to hear so that they will do what I want them to do.				
10.	I would be upset if my success came at someone else's expense.				
11.	I often admire a really clever scam.				
12.	I make a point of trying not to hurt others in pursuit of my goals.				
13.	I enjoy manipulating other people's feelings.				
14.	I feel bad if my words or actions cause someone else to feel emotional pain.				
15.	Even if I were trying very hard to sell something, I wouldn't lie about it.				
16.	Cheating is not justified because it is unfair to others.				

Please continue to next page...

		<i>Disagree Strongly 1</i>	<i>Disagree Somewhat 2</i>	<i>Agree Somewhat 3</i>	<i>Agree Strongly 4</i>
17.	I find myself in the same kinds of trouble, time after time.				
18.	I am often bored.				
19.	I find that I am able to pursue one goal for a long time.				
20.	I don't plan anything very far in advance.				
21.	I quickly lose interest in tasks I start.				
22.	Most of my problems are due to the fact that other people just don't understand me.				
23.	Before I do anything, I carefully consider the possible consequences.				
24.	I have been in a lot of shouting matches with other people.				
25.	When I get frustrated, I often "let off steam" by blowing my top.				
26.	Love is overrated.				

Thank you for filling this questionnaire in. Please turn the page and continue.

Appendix L. START Items

START Assessment Summary Sheet

Name: _____ **DOB:** _____ **Date Completed:** _____

Diagnoses (including ICD10/ DSM IV Code): _____

Legal Status: _____ **Hospital:** _____ **Date Of Next START:** _____

Key Item	Strengths			START Items	Vulnerabilities			Critical Item	SIGNATURE RISK SIGNS							
	2	1	0		0	1	2		Hx+	Risks	T.H.R.E.A.T.		Low	Mod	High	
				1. Social Skills												
				2. Relationships												
				3. Occupational												
				4. Recreational												
				5. Self-Care												
				6. Mental State												
				7. Emotional State												
				8. Substance Use												
				9. Impulse Control												
				10. External triggers												
				11. Social Support												
				12. Material resources												
				13. Attitudes												
				14. Med. Adherence												
				15. Rule Adherence												
				16. Conduct												
				17. Insight												
				18. Plans												
				19. Coping												
				20. Treatability												
				21. Case Specific:												
				22. Case Specific:												

Health Concerns/Medical Tests: _____

Risk Formulation: *what factors/predict-explain/which person/will carry out/what act/when? (Please continue on back of page if required)*

Responsible Clinician: _____

Specialty Doctor: _____

Nurse: _____

Psychologist _____

Occupational Therapist: _____

Appendix M: Incident Scales

Name: _____ Date of Birth: _____ Date completed: _____

INCIDENT SEVERITY SCALES – Please indicate review period:			
Verbal Aggression Overt Aggression Scale (OAS; Yudofsky, Silver, Jackson & Endicott, 1986)		Physical Aggression Against Objects OAS (Yudofsky et al., 1986)	
	1. Makes loud noises, shouts angrily		1. Slams door, scatters clothing, makes a mess.
	2. Yells mild personal insults (e.g. "you're stupid).		2. Throws objects down, kicks furniture without breaking it, marks the wall.
	3. Curses viciously, uses foul language in anger, makes moderate threats to others/self.		3. Breaks objects, smashes windows
	4. Makes clear threats of violence towards others (e.g. "I'm going to kill you") or request help to control self.		4. Sets fires, throws objects dangerously
Physical Aggression Other People OAS (Yudofsky et al., 1986)		Self-Harm OAS (Yudofsky et al., 1986)	
	1. Makes threatening gesture, swings at people, grabs at clothes.		1. Picks/scratches skin, hits self, pulls hair (with no minor injury only).
	2. Strikes, kicks, pushes, or pulls hair (without injury to them).		2. Bangs head, hits fist into objects, throws self onto floor or into objects (hurts self without serious injury).
	3. Causes mild-moderate physical injury (e.g. bruises, sprain, welts).		3. Small cuts or bruises, minor burns.
	4. Causes severe physical injury (e.g. broken bones, deep lacerations, internal injury).		4. Mutilates self, makes deep cuts, bits that bleed, internal injury, fracture, loss of consciousness, loss of teeth.
Suicide Brief Psychiatric Rating Scale (BPRS-E 4.0; Ventura et al., 1993; Jail Screening Assessment Tool, Nicholls et al., 2005)		Unauthorised Leave	
	1. Occasional feelings of being tired or living or better off dead. Abstract and general thoughts. Occasional suicide ideation, denies intent or plans.		1. Returns late from unescorted day or weekend leave without prior
	2. Reports persistent suicide ideation resulting in distress, denies plans (e.g. thoughts about a method).		2. Returns, or is returned, from unescorted day/weekend leave 24 hours or more late.
	3. Reports frequent and persistent suicide ideation and intent. Voices concrete plans or makes low lethality suicidal gestures or attempts OR impulsive suicide attempt using low-lethality means (superficial cutting) or with high likelihood of rescue (e.g. in plain view, during scheduled checks).		3. Absconds from escorted leave/day/weekend leave.
	4. Describes specific, detailed plan and intent. Searches for appropriate means and time OR potentially serious attempt using lethal means (e.g. hanging) and/or in secluded environment. Plan reflects low likelihood of resuscitation or discovery, readily available means.		4. Escapes from hospital and is returned by Police, or is not returned.

Name: _____ Date of Birth: _____ Date completed: _____

Substance Use		Self-Neglect (Gunstone, 2003; BPRS-E 4.0, Ventura et al 1993)	
	1. Occasional user of mild (alcohol/marijuana) without physical, behavioural, emotional, relationship, occupational, or educational impairment.		1. Needs occasional prompting, no serious implications responds to direction.
	2. Occasional substance use leading to mild physical, behavioural, emotional, relationship, occupational, or educational impairment.		2. Needs more persistent prompting, moderate implications, does not respond consistently to direction.
	3. Frequent substance use leading to significant physical, behavioural, emotional, relationship, occupational, or educational impairment.		3. Demonstrates unsafe behaviour likely to cause serious (but not life threatening implications, does not respond to direction)
	4. Regular, compulsive use leading to severe physical, behavioural, emotional, relationship, occupational, or educational impairment.		4. Demonstrates life-threatening behaviour (e.g. hunger strikes, not seeking emergency medical treatment).
Being Victimised		Sexually Inappropriate (Mikkelsen & Stelk, 2001; Croker, 2005)	
	1. Results in mild emotional/financial injury, property damage, fear or intimidation.		1. Sexually threatening, inappropriate or suggestive statements/behaviours.
	2. Results in moderate/severe emotional injury, fear/intimidation, financial injury, but without physical injury.		2. Exposes genitals to others, masturbates in public or is voyeuristic.
	3. Results in mild-moderate physical injury (e.g. bruises, sprain, welts).		3. Sexually touches or fondles others non-consensually.
	4. Results in severe physical injury (e.g. broken bones, deep lacerations, internal injury).		4. Has coercive sexual activities (rape with/without penetration, oral, genital, or anal), with/without physical beating.
Stalking Stalking Assessment and Management (SAM; Kropp & Hart, 2003)			
	1. Non-contact (e.g. talking about, loitering near, or following victim)		
	2. Contact (e.g. phoning, sending notes, talking to victim in person)		
	3. Aggressive, threatening contact (e.g. threats to damage property, threats to self, threats to harm the target, verbal abuse)		
	4. Violent contact (e.g. physical aggression, destruction to property). Stalking involves supervision violations.		