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VIOLENCE RISK ASSESSMENT IN MALE AND FEMALE MENTALLY DISORDERED OFFENDERS

-DIFFERENCES AND SIMILARITIES

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To my husband Anders, and my children
Samuel, Joel and Rebecka

ABSTRACT

Strand, S. (2006). *Violence Risk Assessment in Male and Female Mentally Disordered offenders – Differences and Similarities.* Sundsvall, Sweden: Mid Sweden University, Department of Health Sciences. ISBN 91-85317-21-7.

When assessing the risk of violence, increasing interest has been shown in bringing science and practice closer together. Moving from clinical intuition in the first generation of risk assessment via actuarial scales in the second generation to the structured professional judgments where risk assessments are today produces better, more valid results when assessing the risk of violence. One of the best predictors of violence is gender. Approximately 10% of the violent criminality can be attributed to women; even so, it is increasing, especially among young women. It is therefore important to examine risk assessments from a gender perspective. Another important factor when assessing the risk of violence is psychopathy and there are indications that there might be gender differences in this diagnosis. Thus, a special interest has been focused on psychopathy in this thesis. The purpose with this work is to explore the similarities and differences in assessing risk for violence in male and female mentally disordered offenders, while the overall aim is to validate the violence risk assessment instrument HCR-20 for Swedish offender populations.

The risk assessments for all six studies in this thesis were made by trained personnel using the HCR-20 instrument, where psychopathy was diagnosed with the screening version of the Psychopathy Checklist (PCL:SV). The study populations were both male and female mentally disordered offenders in either the correctional or the forensic setting.

The findings show that both the validity and the reliability of the HCR-20 and the PCL:SV were good and the clinical and risk management subscales were found to have better predictive validity than the historical scale. Another finding was that there were more similarities than differences between genders in the HCR-20, while the opposite applied to the PCL:SV, where the antisocial behavior was performed in a different manner. Moreover, it was found that the gender of the assessor might be a factor to take into account when

assessing the risk of violence in women, where the recommendation was that at least one assessor should be female.

The conclusions were that the HCR-20 and the PCL:SV can be used In Swedish offender populations with valid results. For female offenders, there are differences in the antisocial behavior that is assessed in order to diagnose psychopathy and these differences tend to underestimate psychopathy among female offenders. Furthermore, the gender of the assessor might be of greater importance than has previously been realized. The overall conclusion was that this thesis supports the structural professional judgment method of making risk assessments in order to prevent violence in the community.

Keywords: Risk assessment, HCR-20, psychopathy, PCL:SV, female offenders, mentally disordered offenders, antisocial behavior, violent recidivism

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Sundsvall, May 2006

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LIST OF PUBLICATIONS

This thesis is based on the following studies, which will be referred to in the text by their Roman numerals:

I. Strand, S., Belfrage, H., Fransson, G., & Levander, S. (1999). Clinical and risk management factors in risk prediction of mentally disordered offenders – More important than historical data? A retrospective study of 40 mentally disordered offenders assessed with the HCR-20 violence risk assessment scheme. *Legal and Criminological Psychology, 4,* 67-76.

II. Belfrage, H., Fransson, G., & Strand, S. (2000). Prediction of Violence within the Correctional System Using the HCR-20 Risk Assessment Scheme – A prospective study of 41 long-term sentenced offenders in two maximum-security correctional institutions. *Journal of Forensic Psychiatry, 11,* 167-175.

III. Strand, S., & Belfrage, H. (2001). Comparison of HCR-20 scores in violent mentally disordered men and women: Gender differences and similarities. *Psychology, Crime and Law, 7*, 71-79.

IV. Strand, S., & Belfrage, H. (2005). Gender differences in psychopathy in a Swedish sample. *Behavioral Sciences and the Law, 23,* 1-14.

V. Douglas, S. K., Strand, S., Belfrage, H., Fransson, G., & Levander, S. (2005). Reliability and validity evaluation of the Psychopathy Checklist: Screening Version (PCL:SV) in Swedish correctional and forensic psychiatric samples. *Assessment*, *12,* 145-161.

VI. Strand, S., Johansson, P., & Belfrage, H. (Manuscript). The assessment of psychopathy in female offenders: How important is the gender of the assessor?

ABBREVIATIONS

ASPD	Antisocial Personality Disorder
AUC	Area Under the Curve
BRÅ	Brottsförebyggande Rådet The Swedish National Council for Crime Prevention
CD	Conduct Disorder
DIF	Differential Item Functioning
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders, 4th ed.
EFA	Explorative Factor Analysis
FPE	Forensic Psychiatric Evaluation
HCR-20	Historical, Clinical and Risk management factors; a 20-item risk assessment checklist
HPD	Histrionic Personality Disorder
ICC	Intra Class Correlation
IRT	Item Response Theory
PCL	Psychopathy Checklist
PCL-R	Psychopathy Checklist – Revised
PCL:SV	Psychopathy Checklist: Screening Version
PD	Personality Disorder
ROC	Receiver Operating Characteristics
SARA	The Spousal Assault Risk Assessment guide, a 20-item risk assessment checklist
SPJ	Structured Professional Judgment
SVR-20	The Sexual Violence Risk instrument, a 20-item risk assessment checklist
VPS	The Violence Prediction Scheme
VRAG	Violence Risk Appraisal Guide; a 12-item risk assessment scale

BACKGROUND

One of the best predictors of crime is gender. It is well known that the base rate for both general and violent crimes, no matter how it is measured, in the general population is higher for men than for women (Pollak, 1953; Adler, 1975; Monahan, 1984; Archer, 1994; Chesney-Lind, 1997; Nicholls, 1997; BRÅ, 2004b). For example, in 2003, only 16% (n=18,670) of those convicted of a crime in Sweden were women (BRÅ, 2004b), while, in the case of violent criminality, the male dominance is even greater. In 1993-2003, approximately 8-11% (n ≈ 1,200) of all convicted violent offenders in Sweden were women (BRÅ, 1995, 2001a, 2004b). Although the number of violent criminal acts committed by women was smaller than those committed by men, violent crimes have been increasing more rapidly among women; in 1982-1997, the increase was 111% for women, compared with 33% for men, with the largest increase (150%) being seen among the youngest women, aged 15-20 years (BRÅ, 1998b). This increase in young violent females could also be seen in other countries, such as the UK, where the most common female assault perpetrator is a woman aged between 15-24 years (Campbell, Muncer & Bibel, 2001). Even though there is an increase in violent female criminality, it is difficult to establish the actual extent of violent female criminality, since most of the research done on the criminological aspects has been done from a male perspective, due to some extent to the small female offender population (Ericson, 2003). However, even though the female offender population is small, it is increasing rapidly and this makes it even more important to focus on this population in order to stop this increase. The result of the small amount of research in the area of female offenders is that there are many questions that are unanswered when it comes to female offenders compared with male ones. This thesis will try to answer some of them by showing some of the similarities and differences that are seen in male and female offenders when it comes to violence risk assessments in mentally disordered offenders.

Violence Risk Assessment

In an attempt to reduce violence in the community, mental health professionals try to assess the risk of future violence in their patients and this is done in many different contexts (Witt, 2000). It is important that professionals receive as much information as possible about how best to

assess the risk for the most valid results, since they are *"frequently consulted to diagnose and predict human behavior"* (Dawes, Faust & Meehl, 1989, p. 1668). In many cases, the results of the assessments are used in court as an important factor for the outcome of the trial. In 1974, Ennis & Litwack (p. 711) wrote that *"the perception of dangerousness is the single most important determinant of judicial decisions to commit individuals or to release patients requesting discharge from hospital"*. Since risk assessments are so important for the individual, the fact that they are made on a daily basis in both correctional and forensic psychiatric settings means that it is necessary to have the best methods available. Research in this area contributes to the production of increasingly more effective methods to assess risk for violence.

First Generation of Research on Risk Assessment

In the mid-1900s, offenders in the United States were sent to prison with sentences with a minimum and maximum length that could differ by up to 20 years and their release was determined by the outcome of the parole board's decision. The task of the parole board was to decide when the offender was no longer dangerous to society and to make this decision they had nothing else to rely upon but their own intuitive clinical judgments (Monahan, 1984). In 1966, the offender Johnnie Baxstrom served out his sentence in a hospital prison as a mentally ill inmate to which he was committed as a civilian. In Baxstrom vs. Herold (383 U.S. 107, 1966), the United States Supreme Court ruled the procedure unconstitutional and, as a result, nearly a thousand mentally ill inmates (n=967) were transformed from criminal institutions to civil hospitals. These inmates were later referred to as the "Baxstrom" patients. There were fewer institutional problems with the "Baxstroms" than the hospital staff had anticipated. Since they did not cause much trouble, they were up for release from the hospital relatively soon after admission. During the first year, 200 were released into the community and, after a further three years (1970), only 49% of the patients were still inmates at these hospitals (Steadman & Halfon, 1971). The Baxstrom case thereby paved the way for a natural experiment that could never have been planned and carried out by scientists. Not only would it have been almost impossible to release that many patients at the same time, it would also have been very unethical to perform such an experiment knowing that patients needed psychiatric care and not giving it to them. Steadman and Cocozza (1974) followed up the risk assessments made on

98 of these released prisoners, with a follow-up period of 4.5 years, in terms of violent recidivism. The result was poor; for every correct prediction, there were more than two false positive errors. It should be remembered, however, that only 15% (n=13) of the 84 Baxstroms released in 1966, who Steadman and Halfon studied in their four-year follow-up, had committed new crimes. They concluded in their report that (p. 385*) "The level of dangerousness of this population was surprisingly low".*

The Baxstrom case opened up a new area of research, namely predicting the risk of violence, and research in risk assessment could be said to have begun with the studies conducted by Steadman & Cocozza. However, it could also be said to some extent to end (!) with the Baxstrom case, since the results were so poor and the experiment was therefore regarded as unethical. Professionals agreed that all those sentenced to prison who were mentally ill required a risk assessment before being discharged into the community, but, the first attempts to assess risk turned out to be strongly over-predicted – of those predicted to be dangerous, between 65% and 95% were false positives (Ennis & Litwack, 1974, p. 715). It must be remembered that the first risk assessments were based on the clinicians' own intuitive clinical judgments, sometimes aided by psychological and psychiatric reports, to see whether the offender was sufficiently well rehabilitated to be released with a low risk of committing a violent act, and that they had no standard risk predicting instrument which has been developed from any research to lean on when making their decisions (Monahan, 1984). In their review of the reliability and validity of the psychiatrist's diagnostic performance, Ennis & Litwack (1974) reported that the psychiatrists agree on psychiatric diagnoses in no more than 40-60% of the cases, which means that there was the same likelihood that they would agree or disagree upon such elementary issues as diagnosis. Since the reliability of diagnosis was limited, so, too, was the validity. With these poor results from diagnosing the same patients, it was obvious that there were also some major problems when it came to risk assessments. Performing the risk assessments was said to be unethical, due to the very low validity, and the conclusion was that they should therefore no longer be performed as a result of the legal consequences for the individual. Along with the hesitation about using risk

assessments in courts of law, the area of research was soon also considered to be unethical and was thereby put on hold.

The case of O'Connor vs. Donaldson (422 U.S. 563, 1975) brought on a reform specifying a requirement to assess dangerous behavior for the civil commitment of mentally ill patients. Although all the research conducted on validating processes for assessing dangerousness pointed at failure among mentally ill patients, this demand from many states in the USA led to mental health professionals offering their opinions on the dangerousness of patients without any valid methods (Otto, 1992). Ennis & Litwack (1974) concluded that there was little or no evidence that psychiatrists make better predictions of dangerous behavior than laymen and the reliability of the assessments was like (p. 693) *"Flipping Coins in the Courtroom"*. They argued that the courts should exclude the significance of psychiatric diagnoses, judgments and predictions of dangerous behavior since they lacked reliability and validity. Monahan (1984) also focused on this issue. From the few studies that were conducted on predicting dangerous behavior, Monahan drew three conclusions; firstly, he concluded that psychiatrists and psychologists are accurate in no more than one in three predictions of violent behavior, his second conclusion was that the same predictors of violence were found in the non-psychiatric population as in the psychiatric population – the predictors included age, gender, social class and a history of prior violence – and, thirdly, he reported that diagnoses, severity of mental disorder and personality characteristics were the weakest predictors of violence among mentally disordered patients in a psychiatric population. The poor result of these studies raised the question of whether it would be better to focus attention on the offender's first choice to commit a crime at all, instead of preventing him/her from doing it again. If that were done and succeeded, predictions of violence would become unnecessary.

The individual offender who was given a sentence that relied upon psychiatric expert witnesses could suffer some legal consequences as a result of the risk prediction that was made and, since the results of these predictions turned out to be so poor, Ennis & Litwack (1974) made a consequence analysis with the following recommendations (p. 735-751);

"(A) Psychiatrists should not be permitted to testify as experts in civil commitment proceedings,

(B) If psychiatrists are permitted to testify as experts, the prospective patient should be afforded a meaningful opportunity to cross-examine and call expert witnesses on his behalf,

(C) Nonjudicial commitment should be abolished or severely circumscribed,

(D) "Mental illness" and/or "need for care and treatment" should not be sufficient grounds for commitment,

(E) The criteria for commitment on the basis of dangerousness should be severely circumscribed, and

(F) Commitment should require proof of mental illness and dangerousness beyond a reasonable doubt".

The outcome of this was that risk predictions were no longer used in the courtroom; they were ruled unconstitutional (Monahan, 1996). The fact that risk assessments became unethical in North America influenced countries all over the world. In Sweden, for example, one consequence was that, in 1981, the penalty of internment was stopped, since it relied upon the risk assessment made of the intern.

Second Generation of Research on Risk Assessment

Even though it was said to be unethical to perform risk assessments with the current methods, the need to make them did not disappear. Mentally disordered patients and prisoners would still be discharged and considered for release and there had to be an assessment of risk while preparing them for release. In the case of Tarasoff vs. Regents of the University of California (17, Cal. 3d 425, 1976), it was said that, if psychotherapists knew that their patients were likely to harm a third person, they had an obligation to protect the potential victim. This (p. 110) *"duty to protect"* was then a factor that clinicians used in their everyday work (Monahan, 1996).

Research in the area also began to result in small attempts in areas in which it was necessary to make risk predictions. Monahan was one of the researchers in the field who continued to do research work in the area and, in 1981, he wrote an influential monograph about predicting violence. At the beginning of the 1980s, he called for a second generation of research in risk prediction. In 1984, he made a review of the existing studies of risk assessment that could be said to herald the start of the

second generation of risk assessment. Monahan (1984) specified three themes (p. 11) for the second generation of thought; the first concerned the limit of existing knowledge of risk assessment for violence – the few studies that had been conducted during the first generation all dealt with clinical prediction in long-term custodial institutions, the second concern regarded optimism that some improvement in predictive accuracy was possible, since some researchers presented valid results, and, thirdly, the prediction of violence has to be put in the context of what risk predictions should actually be used for. The prediction of violence should play a limited role in criminal sentencing but could preferably be used when deciding on parole. Risk prediction needed to be used with great caution at this point in view of the poor validity that still applied to these assessments. He summarized the first generation of research and theory as follows (p. 13): *"We know less than we thought about the accuracy of predictions; what little we do know may be improved upon; and how useful this knowledge is depends upon what we do with it, compared with what we would do without it".* To improve the research, he asked for studies that focused on actuarial techniques, including clinical information, studies that vary the factors used in risk prediction of violence and, finally, studies in different populations, including short-term predictions. Research that followed Monahan's advice was methodologically superior to earlier studies and the results improved the predictions, which began to be more accurate, and the area of research in risk prediction can thus be said to have started again.

In his review, Otto (1992) concluded that the short-term predictions of committing violence were now accurate in one in two cases, which was better than before but still not good enough. The false positive assessments were still the most common error. Around 1990, the concept changed from "predicting dangerousness" to "assessing risk" (Menzies, Webster & Hart, 1995). This was an important step towards the acceptance of variables lying outside the clinician's control, such as environmental, situational and social considerations. Clinicians can now offer probability rather than yes/no statements about the actual risk of committing violence, just as Monahan wanted in 1984 (Webster et al., 1997).

One of the first instruments to be developed with psychometric properties in a systematic way was the **"Dangerous Behavior Rating**

Scheme" (DBRS), which Menzies, Webster & Sepejak constructed in 1985. The instrument consisted of 22 items (later reduced to 11), each rated on a seven-grade Likert scale. Some of the risk factors in the instrument were anger, rage, tolerance, guilt and environmental support. The inter rater agreement on the instrument was poor in the beginning, but, after some work on the instrument, it became acceptable. The validation after a two-year follow-up was not so good; a modest correlation of .34 between the assessment and the outcome of violence was found (Douglas, Cox & Webster, 1999). Even with an optimal measure with the DBRS, the instrument could only account for 12% of the variance in follow-up dangerous behavior (Webster & Menzies, 1993). One of the mistakes that were made when developing this instrument was that some of the factors were not empirically associated with violent behavior. This was not unusual, as Witt (2000) concluded (p. 793); many of the risk assessment instruments that circulated among specialists had a context of items that were not empirically founded, instead, they were more like *"lists of items that the author decided were linked to increased risk"* for violence on the basis of their experience. They took it for granted that the correlation between their clinical items and violence was strong without doing any research on it. Although the results were not so good, the idea of having a theoretically based instrument with a semi-structured interview for assessing violence was good (Borum, 1996).

Another risk assessment instrument that was developed was **The Risk Assessment Guide (RAG)** constructed by Webster, Harris, Rice, Cormier and Quinsey (1994), which was a 12-item instrument. The items were empirically derived by using the information gathered from records from 618 patients from a maximum-security psychiatric hospital in Ontario, Canada. One of the variables in the instrument was psychopathy, which is one of the best-known predictors of violent behavior (Hare, 1991). With an average follow-up period of 81.5 months, the RAG had a classification accuracy rate of about 75%, which was good (Borum, 1996). The RAG has high reliability and validity, but it is a complicated scale to use. This may be one of the reasons why the instrument did not become a success; it was just too difficult for clinicians to use on a daily basis. **The Violence Prediction Scheme (VPS)** was developed as a scheme in which the RAG was part 1 and a

clinical consideration was part 2 (Webster et al., 1994). The first steps towards integrating science and practice had been taken.

The Violence Risk Appraisal Guide (VRAG), constructed by Harris, Rice and Quinsey in 1993, was a development of the RAG. At this point, Webster had left this group of researchers and was not involved in the development of the VRAG. Instead, Webster started working with scientists at the Simon Fraser University on the development of more dynamic risk assessment procedures building on the ideas of the VPS. The VRAG, however, showed good validity with an AUC = .76 (Rice, 1997). One of the criticisms that has been leveled at the VRAG is that, for the user, it seems somewhat absurd that some of the items can also be seen as being protective of recidivism in violence; for example, if you have murdered a woman, you are given a lower score than if the victim was a man, indicating a lower risk of committing violence, since murderers seldom murder again and the majority of murdered victims are men!

At the same time as the VRAG was developed, the large-scale MacArthur Violence Risk Assessment Study (1988-1997) was conducted in the United States. The study had two major goals, namely *"to do the best 'science' on violence risk assessment possible"* and to make an actuarial violence risk assessment instrument that could be used by clinicians (MacArthur, 2006). One thousand one hundred and thirty-six (1,136) patients aged between 18-40 from acute civil inpatient facilities were interviewed and then followed into the community. After 20 weeks, 18.7 percent of the studied patients had committed a violent act. Of the 134 risk factors that were considered in the study, 70 were significantly correlated with subsequent violence in the community. Some of the risk factors were gender, prior violence, childhood experience, neighborhood and race, diagnosis, psychopathy, delusions, hallucinations, violent thoughts and anger (ibid.). One of the most important factors for violence found in this study was the combination of mental disorder and substance abuse. Another finding was that violence was more common than had previously been hypothesized. The MacArthur study produced a clinically relevant actuarial violence prediction tool to classify civil psychiatric patients into various risk categories on the basis of these results. This approach requires the clinicians to ask certain questions and consider certain risks depending on the answer given previously.

Eighteen variables were entered into logistic regression-based classification trees. This model obtained a strong relationship with violence (Steadman et al., 1994; Steadman et al., 1998; Douglas, Cox & Webster, 1999; MacArthur, 2006; Monahan et al., 2005). The instrument that was developed from the MacArthur study does, however, have some limitations, namely that it only classifies the high- and the low-risk individuals. This means that some individuals are not classified and that perhaps those who are in between are the most difficult cases to assess. Since those who are at medium risk are the ones that are the most difficult to assess, they are the one that need to be better classified in order to more effectively prevent violence.

Structured Professional Judgment (SPJ) Procedures

The risk assessment procedures described above were all based on the actuarial assessment approach. Another way of making risk assessments is to use the structured professional judgment approach, which Webster and colleagues started using on a smaller scale with the VPS (1994). Hart describes the unstructured professional judgment as "*intuitive*" and "*experimental*", while the SPJ method has several advantages. It can be used in any context at a minimal cost and it focuses on the specific aspects of the case, which makes the planning of the interventions for violence risk prevention easier. The disadvantage is that the reliability of the assessment can easily be questioned, since it is very difficult to explain on what grounds the assessment was actually made (Douglas et al., 2001, p. 17).

Although the reliability without validated instruments has been shown to be low, the routine practice at most psychiatric clinics has not been strongly influenced by the scientific findings in the area and, as a result, the routine practice in risk assessments was still to conduct them without any instruments. One reason for this may be the complicated instruments that scientists were able to offer clinicians and, when the clinicians had difficulty using the instrument in practice, they based the risk assessment on their own judgment. When the HCR-20 was constructed, this was one of the things that the authors had in mind – making the instrument so easy to use that it would be more difficult not to use it (Webster et al., 1995). This has also been accomplished to a large degree; as the checklist is an empirically based instrument, it makes it

easier to use and to explain to patients when assessing their risk of violence (Mossman, 2000; Witt, 2000).

A great deal has been written about the kinds of variable that might be expected to predict violence in mentally ill patients and prisoners (Monahan, 1981; Mulvey & Lidz, 1984; Hall, 1987; Hodgins, 1990; Monahan & Steadman, 1994; Borum, 1996; Webster et al., 1997; Douglas, Cox & Webster, 1999). In many studies, there has been a consensus that the assessment should begin with a thorough consideration of the historical facts, and then consider clinical and situational factors for the individual (Webster et al., 1997). In 1993, the clinicians at the British Columbia Forensic Psychiatric Services Commission, who were responsible for both forensic inpatients and outpatients, asked for a way of making the risk assessments of these patients in a more systematic way. In an attempt to integrate the two worlds of research and clinical practice, the researchers Webster, Eaves, Douglas and Wintrup worked with the British Columbia clinicians to develop an instrument to assess the risk of violence. The result was the HCR-20 scheme, which was introduced in 1995 (Webster et al., 1995). Research using the first version was conducted in Canada (Webster et al., 1997; Rice, 1997; Douglas et al., 1998), Sweden (Belfrage, 1998) and Germany (Muller-Isbernet & Jöckel, 1997). The results of the research were implemented in the second version of the instrument, which was published in 1997 (Webster et al., 1997).

The **HCR-20,** which is described in more detail in the method section, contains three different parts; the historical part (H), the clinical part (C) and the risk management part (R). The historical part contains 10 items relating to the patients' background, one of which is psychopathy. To assess psychopathy, either the revised version of the Psychopathy Checklist (Hare, 2003) or the Screening version (Hart, Cox & Hare, 1995) of it is used. The clinical part contains 5 items that describe the patients' present clinical status. They are dynamic, changeable aspects of the person. Although mental illness is found to be a risk factor, it has also been shown that it is the active state of mental illness that makes the difference when it comes to whether a subject is violent or not (Douglas Cox & Webster, 1999; Monahan, 1992). The last section contains 5 items that describe the future risk management factors. These factors are not characteristically tied to the individual but more to the environment

around the person when he or she is released. This means that society can help the individual in some ways and thereby reduce the risk of violence. The HCR-20 can also be used to assess the risk of violence inside the institution (R-in); the items then focus on how well the environment inside the institution is suited to the optimal risk prevention for the patient. Together, the 20 items form the HCR-20 instrument, as can be seen in Table 1 (Webster et al., 1997).

Table 1. Items in the HCR-20 risk assessment scheme.

HISTORICAL (Past)		CLINICAL (Present)		RISK MANAGEMENT (Future)	
H1	Previous violence	**C1**	Lack of insight	**R1**	Plans lack feasibility
H2	Young age at first violent incident	**C2**	Negative attitudes	**R2**	Exposure to destabilizers
H3	Relationship instability	**C3**	Active symptoms of major mental illness	**R3**	Lack of personal support
H4	Employment problems	**C4**	Impulsivity	**R4**	Non-compliance with remediation attempts
H5	Substance use problems	**C5**	Unresponsive to treatment	**R5**	Stress
H6	Major mental illness				
H7	Psychopathy (PCL:SV)				
H8	Early maladjustment				
H9	Personality disorder				
H10	Prior supervision failure				

Some of the criticism towards the HCR-20 relates to the lack of item-analytic research, i.e. it has been shown that each item has equal weight (Witt, 2000). The HCR-20 differs, however, in interpretation from, for example, the VRAG, where the total sum is important. The constructors of the HCR-20 (Webster et al., 1997) make it very clear that this is a checklist with items that are highly correlated to violent behavior and that it is a helpful tool to use when making a risk assessment. The total sum is of no relevance in clinical respects, it is the different items that are of importance. The total sum is only of importance for research. This means that item-analytic research may be interesting from a researcher's viewpoint, but it would be wrong to use it in clinical practice. Mossman

(2000) also came to the conclusion that there is a risk in using the total sum for risk assessments, especially with "low sum" patients. The procedure of risk assessment with the HCR-20 is a written statement based upon the result relating to the risk items the patient has and how they affect the patient on the basis of his/her individual situation. The strength of the HCR-20 instrument is that important factors for violence will not be forgotten when making a risk assessment. Different items can have different weights for different patients, i.e. a person who only commits violence when having delusions, and not otherwise, will be given a risk assessment that focuses on the active state of the mental illness. The practitioner's role will be to try to get the patient to obtain an insight into his condition so that it can be treated and thereby reduce the risk of violence. The HCR-20 should be used as a checklist on which the items are highly correlated with violence by the practitioner who makes the actual risk assessment. He then interprets the results of the assessment and writes them down, The actual statement that is made is the risk assessment. Mossman (2000) concludes that the HCR-20 is an instrument that brings science and research on risk assessment and risk factors for violence into the practitioner's decision-making process and, by doing this, the benefit to both fields increases enormously.

When it comes to violence in general, the HCR-20 is a good tool to use in assessing risk, but research has shown that, in certain types of violence, i.e. sexual violence and spousal assault, other risk factors may be of great importance (Kropp et al., 2003; Boer et al., 1998). The HCR-20 is an instrument that should be used to assess the risk of general violence, including sexual violence and spousal assault, but this could mean that for some perpetrators who have a high risk of committing sexual violence or spousal assault, for example, a better tool is needed, since some of the risk factors that are specific to spousal assault (e.g. jealousy) are not included in the top 20 items connected with general violent crime. The reason for this is that spousal assault is a specific kind of violence. Complementary special-purpose risk assessment schemes have been developed to increase the chance of finding high-risk offenders for specific types of violence as well. When one individual is up for assessment and has previously committed these special kinds of violence, a complementary instrument can be used to make the assessment more specific.

The **Spousal Assault Risk Assessment guide (SARA)** (Kropp et al., 2003), an instrument for assessing the risk of spousal assault, contains 20 variables, like the HCR-20 scheme. The instrument is divided into four different areas: Criminal History, Psychosocial Adjustment, Spousal Assault History and Current Offence. The validity and the reliability (Cronbach's α = .78) of this method have been established in a study comprising 2,300 probationers and inmates in Canada. All SARA ratings were moderately to highly correlated with the PCL:SV (Kropp et al., 1995). The police force saw an opportunity in the SARA instrument to obtain help in assessing the immediate risk of spousal assault in the field, but the instrument needed to be easier to use in practice. Researchers worked with the police in a project that led to the development of the Brief Spousal Assault Form for the Evaluation of Risk (B-SAFER) (Kropp & Hart, 2004), in Canada, and the Swedish translation, SARA:SV (Belfrage & Strand, 2003), which was primarily designed for use in non-clinical environments.

The Sexual Violence Risk (SVR-20) instrument was constructed to improve the identification of high-risk offenders committing sexual violence (Boer et al., 1998). The design is similar to that of the HCR-20, as it also has 20 risk factors divided into three different categories. The three categories are: Psychosocial Adjustment, Sexual Offence and Future Plans. Dempster (1998) made a study of 95 sexual offenders in Canada and found a correlation between the SVR-20 and sexual violence of .34. The AUC for the instrument was .77 for sexual recidivism (Boer et al., 1998).

At present, the HCR-20 is used in both male and female populations. Research on risk assessment with female perpetrators has been very limited. In a study by Nicholls (1997), preliminary evidence of acceptable predictive validity of the HCR-20 was found when predicting the risk of inpatient and outpatient violence among female civil psychiatric patients. One finding was that the HCR-20 works in general for women, but the relationship to physical violence was not as good (AUC = .63) as it was for men (AUC = .74). In another study in a civil psychiatric setting, Nicholls, Ogloff & Douglas (2004) found that the validity of the instrument was good for both male patients (AUC= .72 - .75) and female patients (AUC= .66 - .80). One of the most important findings in this study was that the HCR-20 predicted inpatient violence

among women better than among men. There is still a need for more research on women in order to develop measurements composed of variables that are relevant specifically to the potential for violent behavior in women. Few women have been given long-term sentences compared with men, but, although the severity and the number of violent acts is lower than for men, violent crimes among women have increased more rapidly compared with men (Somander, 1998; BRÅ, 2004b). Statistics reveal that women do recidivate and this means that valid assessments also need to be made of these women so that more active prevention can be implemented to avoid new violent crimes both inside and outside institutions.

Psychopathy

The methods for making risk assessments of violence have differed with time. To begin with, there were different types of actuarial scale and the SPJ methods have then been increasingly developed and put into practice. No matter which method has been used, there are no doubts in the research field that psychopathy should be one risk factor to take into consideration when making an assessment. Since psychopathy is one of the most important risk factors for violent behavior and it is relatively stable over time (Hare, 1991), it is a risk factor that most risk assessment instruments contain (Webster et al., 1994; Webster et al., 1997; Boer et al., 1998; Kropp et al., 2003). In this thesis, interest focuses on psychopathy for this reason.

Many studies have been made in the area of psychopathy and violence. In two meta-analyses, the link between psychopathy and violence was at least moderate (Hemphill, Hare & Wong, 1998) to large (Salekin, Rogers & Sewell, 1996). Psychopaths were also more likely to use instrumental aggression, threats and weapons than violent non-psychopaths (Serin, 1991). Psychopaths are more likely than non-psychopaths to have a history of violence both inside and outside institutions; they are also more likely to commit violence again than non-psychopaths (Hart, 1998).

This is a personality disorder that is known under many different names. Hart and Hare (1996) make the following comparison (p. 380); *"Psychopathy is also known as antisocial, sociopathic or dyssocial personality disorder with a specific pattern of interpersonal, affective and behavioral*

symptoms". It is a personality disorder of great complexity and it is said to be the result of interaction between both social and biological factors, although the relationship is far from established (Mitchell & Blair, 2000).

Psychopathy as a mental disorder was first described in the early 1800´s by the French physician Philippe Pinel (1745-1813), who is considered to be one of the founders of psychiatry. In his book "*Traité médico-philosophique sur l'aleniation mentale; ou la manie*", published in 1801, he discusses his psychologically oriented approach to patients, where he described psychopathy as "*Mania sans delire*" (insanity without delirium). The book was translated into English as a *Treatise on Insanity* in 1806. Later, in 1833-35, James Prichard (1786-1848), an English physician, described a psychopathy like condition of "*moral insanity"* in his book, *The Cyclopedia of Practical Medicine*, which can be regarded as the first step towards the modern concept of dyssocial personality and the first extensive description of psychopathy (Augstein, 1996). He put forward seven characteristics of moral insanity: Moral derangement (emotional or psychological); Loss of self-control; Abnormal temper; Emotions and habits; Abnormal inclinations; Likings and attachments; Normal 'intellect'; Rational but incapable of decency and No delusions or hallucinations. Another important step towards the definition of this condition was made by the German psychiatrist Julius Koch (1841-1908) , who in his book *"Die psychopatischen Minderwertigkeiten",* published in 1891, introduced the term "psychopathic inferiority". According to Koch, psychopathy was somewhere between psychic illness and normality. The concept of psychopathy attained real significance within psychiatry with the German psychiatrist Emil Kraepelin (1856-1926). He called psychopaths "enemies of society" and "antisocial" (Qvarsell, 1993).

Hervey Cleckley wrote his classical book *"The mask of sanity"* in 1941 (5th revision 1976). In it, he described the psychopathic personality in detail using 15 cases. His work is regarded as the first description of the modern concept of psychopathy. Cleckley considered psychopaths to be superficially charming, emotionally shallow, deceitful, egocentric, self-centered, irresponsible and remorseless. He also argued that they were impulsive and blamed others rather than themselves. Cleckley's theory was that psychopaths lacked normal emotional reactions and that they

did not learn from their experiences. He made a list of 16 characteristics that he regarded as the core traits of the personality disorder, namely;

1. Superficial charm; good intelligence
2. No delusions or irrationality
3. Absence of anxiety or other "neurotic" symptoms
4. Unreliable
5. Untruthful and insincere
6. Lacks remorse or shame
7. Inadequately motivated antisocial behavior
8. Poor judgment; failure to learn
9. Pathological egocentricity; incapacity for love
10. General poverty of deep and lasting emotions
11. Loss of insight; unresponsive interpersonal relationships
12. Ingratitude for any special considerations, kindness and trust
13. Fantastic and uninviting behavior with drink (and sometimes without)
14. Suicide rarely carried out
15. Sex life impersonal, trivial
16. Failure to follow any life plan

Johns and Quay (1962) described psychopaths as individuals who (p. 217) *"know the words but not the music"*, meaning that psychopaths know what to say and how to behave to get what they want but they do not know why it works. This could explain to some extent why, at the beginning of a treatment program, they show good results, they learn what to say and how to behave, but, when the skills have to be displayed in real life, they have no idea what they learned and why, the only thing that matters is to get through treatment so that they can get the benefits of finishing the treatment with good results. This could also explain why the condition of psychopaths sometimes "deteriorates" as a result of treatment; they learn new ways to behave in order to manipulate more people.

In 1980, Robert Hare developed his Psychopathy Checklist (PCL) which was based upon the work of Cleckley. It contained 22 items, which in 1985 were reduced to 20 in the revised version (PCL-R, Hare, 1991), still with good reliability (Hare et al., 1990). The PCL-R is widely used all over the world and is regarded as the ***golden standard*** for

diagnosing psychopathy. The PCL-R consists of 20 items relating to personality traits and behaviors that occur in the psychopathic personality. The instrument contains two factors; factor one that relates to the interpersonal and affective characteristics and factor two that correlates with an antisocial and unstable lifestyle (Hare, 1991; Harpur, Hare, & Hakstian 1989). The PCL-R is a validated instrument that is used in both science and practice, where a full assessment with the PCL-R takes 2 to 3 hours to complete. To be able to use it more frequently in practice, the time had to be reduced (Hare, 1996; Hart, Cox & Hare, 1995; Monahan & Steadman, 1994). The PCL:SV was developed as "a little brother" to the PCL-R in order to shorten the time for an assessment. The requirements were that the items had to be correlated with the PCL-R to a high degree, the instrument also had to have high reliability and validity and the instrument should require minimal time and effort to administer and score. For this reason, the screening version, the PCL:SV, was developed in 1995. The idea was that the screening version should take less time to administer, while retaining reasonable accuracy to predict psychopathy (Monahan & Steadman, 1994; Hart, Cox & Hare, 1995). The PCL:SV ended up with two parts, the same as the PCL-R, and contains 12 items.

The PCL-R can be translated into the PCL:SV, as described in Table 2. The PCL:SV consists of 12 items relating to personality traits and behaviors that occur in the psychopathic personality. The two instruments contain two factors/parts, factor/part one that relates to the interpersonal and affective characteristics and factor/part two that correlates with an antisocial and unstable lifestyle (Table 2).

Studies of psychopathy consistently reveal the same results, with few exceptions, there is a higher base rate of psychopathy among men than women (Wong, 1984; Hare, 1991, 1996; Hart, Cox & Hare, 1995; Hamburger, Lilienfeld & Hogben, 1996; Salekin, Rogers & Sewell, 1997; Rutherford et al., 1998; Jackson et al., 2002; Vitale et al., 2002; Hare, 2003). Strachan, Williamson & Hare (1990) found a prevalence rate of 37.5% for psychopathy in a high-risk prison population; otherwise, in criminal populations, the base rate for men is approximately 25-30% and for women 10-15%. In a study of female inmates, Salekin, Rogers and Sewell (1997) found that 16% fulfilled the criteria for psychopathy. In another study in 1998, the same researchers found that, among 78 female

inmates, 13% (n=10) fulfilled the criteria for psychopathy, while as many as 51% (n=40) were diagnosed with ASPD. In their study of university students, Forth, Brown, Hart and Hare (1996) found that the female students scored significantly lower on the PCL:SV than male students. A significant difference between men and women was also found with the PCL-R in Rutherford et al.,'s (1995) study of methadone patients. Gender differences in the prevalence of psychopathy are consistent with research findings for ASPD.

Table 2. PCL-R and PCL:SV items.

PCL-R	**FACTOR**	***PCL:SV***	**PART**	**PCL-R ITEM**
1. Glibness/Superficial Charm	1	1. Superficial	1	1
2. Grandiose Sense of Self Worth	1	2. Grandiose	1	2
3. Need for Stimulation/Proneness to Boredom	2	3. Deceitful	1	4, 5
4. Pathological Lying	1	4. Lacks Remorse	1	6
5. Conning/Manipulative	1	5. Lacks Empathy	1	7, 8
6. Lack of Remorse or Guilt	1	6. Doesn't Accept Responsibility	1	15, 16
7. Shallow Affect	1	7. Impulsive	2	3, 14
8. Callous/Lack of Empathy	1	8. Poor Behavioral Controls	2	10
9. Parasitic Lifestyle	2	9. Lacks Goals	2	13
10. Poor Behavioral Controls	2	10. Irresponsible	2	9
11. Promiscuous Sexual Behavior	-	11.Adolescent Antisocial Behavior	2	12, 18
12. Early Behavioral Problems	2	12. Adult Antisocial Behavior	2	19, 20
13. Lack of Realistic, Long-Term Goals	2			
14. Impulsivity	2	*Items not included in the PCL:SV*		*11, 17*
15. Irresponsibility	2			
16. Failure to Accept Responsibility for Own Actions	1			
17. Many Short-Term Marital Relationships	-			
18. Juvenile Delinquency	2			
19. Revocation of Conditional Release	2			
20. Criminal Versatility	-			

Psychopathy and violence

In several studies, psychopathy has been shown to be a good predictor of recidivism in both violent crimes and general crimes in male samples (Wong, 1984; Hart, Kropp, & Hare, 1988; Serin, Peters, & Barbaree, 1990; Harris, Rice & Cormier, 1991). The rate of general recidivism, such as reconviction or reincarceration, among psychopaths has been significantly higher than that of other male offenders (Hart, Hare & Forth, 1994). Male psychopaths were also four times more likely to recidivate into violent criminality within a year of release than non-psychopaths (Hemphill, Hare & Wong, 1998). Recidivism rates among male psychopaths have ranged from 38% to 85%, with a mean value of 63% in correctional samples (Serin, Peters, & Barbaree, 1990; Hart, Kropp & Hare, 1988; Serin, 1996). In their study of psychopathy and recidivism among female inmates, Salekin and colleagues (1998) found that psychopathy among women was a moderate predictor of recidivism. They did not find the same strong relationship between violence and psychopathy as for men. Fifty percent (n=5) of the female psychopaths recidivated into crimes within 14 months, which was 13% lower than the figure for men. Among women, the psychopathic personality has also been found to be more related to assaultive behavior towards strangers than emotionally attached individuals (Edwall et al., 1989).

Few studies have been conducted on female psychopaths and recidivism and the study by Salekin et al., (1998) comprises such a small number of women that its results can only be regarded as indications. The small number of participants makes it difficult to draw any conclusions other than for that specific sample. However, every study conducted in the area contributes some knowledge that can help other researchers to perform more research with new hypotheses.

Antisocial Personality Disorder (ASPD)

An antisocial lifestyle is an important variable for psychopathy in the PCL instruments which are measured in the PCL:SV in both item 11 "Adolescent Antisocial Behavior" and item 12 "Adult Antisocial Behavior". Even if most of the criminal psychopaths also have an ASPD, the reverse is not necessarily true (Hart, Hare & Harpur, 1992). Only 20-30% of those diagnosed with ASPD meet the PCL-R criteria for psychopathy (Hart & Hare, 1989). The ASPD criteria (DSM-IV, 1994) fail

to distinguish the callous, remorseless psychopath from other individuals diagnosed with an ASPD (Serin, 1996). The ASPD is a cluster B personality disorder, where the diagnostic criteria for ASPD according to the DSM-IV manual (p. 218) are:

"A. There is a pervasive pattern of disregard for and violation of the rights of others occurring since age 15 years, as indicated by three (or more) of the following:

1. *failure to conform to social norms with respect to lawful behaviors as indicated by repeatedly performing acts that are grounds for arrest*
2. *deceitfulness, as indicated by repeated lying, use of aliases, or conning others for personal profit or pleasure*
3. *impulsivity or failure to plan ahead*
4. *irritability and aggressiveness, as indicated by repeated physical fights or assaults*
5. *reckless disregard for safety of self or others*
6. *consistent irresponsibility, as indicated by repeated failure to sustain consistent work behavior or honour financial obligations*
7. *lack of remorse, as indicated by being indifferent to or rationalizing having hurt, mistreated, or stolen from another*

B. The individual is at least 18 years old (under 18 see Conduct Disorder)

C. There is evidence of Conduct Disorder with onset before age 15 years

D. The occurrence of antisocial behavior is not exclusively during the course of Schizophrenia or a Manic Episode"

Gender differences in ASPD have been found, and described, in both prevalence and diagnostic patterns. In epidemiological studies, the base rates of ASPD were found to be higher for men (3.1-4.5%) than for women (0.8-1.9%) in the general population (Robins, Tipp & Przybeck, 1991; Mulder et al., 1994), which could explain a difference in forensic populations as well. In 1994, Mulder and colleagues conducted a study of ASPD on 1,498 urban adults, aged 18-64 years. In this civil population, they found that men with ASPD had higher levels of unlawful behavior and traffic offences, whereas women had more relationship difficulties and lying. Women also differed from men by having higher rates of depressive and anxiety disorders and more suicidal behavior. Both male and female individuals with ASPD had much higher rates of lifetime drug and alcohol disorder and higher rates of "use of psychiatric services" than those who did not suffer from an

ASPD. Instead of having a criminal lifestyle, women had more of a parasitic lifestyle with friends and family. They were more likely than antisocial men to be chronically unemployed, have high rates of marital separation, to be dependent on social assistance programs, have lower rates of unlawful behavior and were more likely to tell lies than antisocial men (Robins, Tipp & Przybeck, 1991; Mulder et al., 1994; Rutherford et al., 1995; Silverthorn & Frick, 1999). Women with an ASPD were symptomatically similar to men, but their absolute rates of symptoms were lower (Robins, Tipp & Przybeck, 1991; Mulder et al., 1994).

Rutherford and colleagues (1995) found that, regardless of the diagnostic method in their study of ASPD, the rates were lower for women than for men. Adult criteria assessing personality traits were less reliable for women than for men, whereas distinct behaviors were as reliably assessed for women as for men (Rutherford et al., 1995). They also found that, in the case of women, the early childhood criteria, which are required for a diagnosis, were not as highly correlated with the adult criteria and the correlation with adult antisocial behavior was low. One conclusion was that antisocial behaviors in women were more closely related to the early assumption of adult roles and minor norm-breaking behaviors in childhood than to aggressive or violent behavior. The pattern for antisocial behavior can be said to differ between men and women. Research has shown that women are less likely than men to express aggression in criminal activity. Their results indicate that there should be a lower cut-off for ASPD in women, mainly due to the low correlation between early childhood criteria and antisocial behavior as an adult. They argue that, to make a more reliable and internally consistent diagnosis for ASPD, the criteria for ASPD should be changed. Their suggestion was that: (p. 1316) "*Adult criteria that focus primarily on behaviors that are impulsive (e. g. changing jobs or sexual partners, failing to plan ahead), reckless, or neglectful (poor parenting, debts), rather than criteria assessing aggressive or illegal behaviors, may be more appropriate*".

In her study in 1966, Robins found that only 12% of girls with behavioral problems were subsequently diagnosed as psychopaths, whereas 50% of boys with behavioral problems were diagnosed as psychopaths. Similar results were found three decades later where violent and aggressive childhood criteria of ASPD on the DSM-III-R was

found to have little relationship to the assessment of ASPD in women (Rutherford et al., 1995). Antisocial girls were less likely than antisocial boys to engage in aggressive acts; instead, antisocial girls engage in other antisocial acts such as stealing (Silverthorn & Frick, 1999). In the case of women, the strongest correlation between ASPD and childhood problems was early involvement in adult behavior (e.g. drinking, sex) and difficulty with family and school (e.g. running away, low grades) rather than more aggressive or violent behavior (Rutherford et al., 1995).

Research has shown that there was more overlap between ASPD or psychopathy and other disorders such as depression, anxiety and histrionic personality disorder (HPD) in women than in men (Salekin et al., 1998). Hamburger, Lilienfeld & Hogben (1996) proposed that psychopathy in men was a form of ASPD, whereas in women the HPD was the personality disorder most linked to psychopathy. Like the ASPD, the HPD is, a cluster B personality disorder. The disorder is characterized by emotionally and sexually excessively behavior, while attention seeking and a need to be the center of attention is also important. Chodoff (1982) argues that the histrionic personality is purely a caricature of femininity, which has developed under the influence of cultural forces where men were dominant. Researchers have argued that both the HPD and ASPD represent gender role stereotypes (Chodoff, 1982), but the empirical evidence for this proposal is not clear (Hamburger, Lilienfeld & Hogben, 1996).

Several researchers have proposed that the construct of psychopathy may differ in important respects as a function of sex (Rutherford et al., 1995; Hamburger, Lilienfeld & Hogben, 1996; Salekin et al., 1998; Vitale & Newman, 2001; Chapman, Gremore & Farmer, 2003). In 1970, Cloninger and Guze discovered in their study of 66 female offenders that sociopathy (39%) and hysteria (15%) and the two combined (26%) appeared 20 times more frequently than would be expected in the general female population. This study also confirms a significant relationship between sociopathy and hysteria, where sociopathy was measured with the Robins criteria for sociopathy (Robins, 1966). In a study of 250 patients, both men and women, the prevalence rate for histrionic personality was surprisingly similar, 12.8% for men and 16.1% for women; usually, the rate is much higher in female samples than in male samples. In this population, the researchers found a strong

correlation between ASPD and histrionic personality. They also found that female psychopathy may have a substantial overlap with somatization (Lilienfeld et al., 1986). Research has shown that there is more overlap between ASPD or psychopathy and other disorders, such as depression, anxiety and histrionic personality disorder, in women than in men (Salekin et al., 1998). Hamburger, Lilienfeld & Hogben, (1996) proposed that psychopathy in men is a form of ASPD, whereas in women the HPD is the personality disorder most linked to psychopathy. Gender differences in the prevalence of antisocial and histrionic PD may be due to gender bias in the defining features of these diagnostic concepts (Rutherford et al., 1995; Vitale & Newman, 2001).

AIMS OF THE PRESENT STUDY

This thesis will attempt to provide some answers to questions relating to risk assessment for general violence in male and female populations performed using the HCR-20 risk assessment scheme and its component, the PCL:SV for psychopathy. Since psychopathy has been found to be one of the best predictors of future violence in male populations, it is important to explore the condition in female populations as well.

The purpose of this thesis was to explore the similarities and differences in assessing risk for violence in male and female mentally disordered offenders, while the overall aim was to validate the HCR-20 and the PCL:SV for Swedish offender populations.

The specific aims were to:

- Validate the HCR-20 for Swedish mentally disordered offenders in terms of how the HCR-20 is able to discriminate between offenders who have recidivated into new violent criminality and those who have not, both outside the institution (**I**) and inside the institution (**II**)
- Describe differences and similarities in risk factors for violence among mentally disordered male and female offenders (**III, IV, V**)
- Investigate the construct of psychopathy in a group of female offenders and compare it with a reference group of male offenders for both psychopaths and non-psychopaths (**IV**)
- Explore the PCL:SV in terms of structural reliability and validity by analyzing the relationship between psychopathy and institutional aggression, risk of violence, substance use problems, diagnostic categories and the role of gender in the prevalence of psychopathy (**V**)
- Investigate whether male and female assessors come to the same conclusions when assessing psychopathy in the same female offender study group with the PCL:SV (**VI**)

MATERIAL AND METHODS

Definition of Violence and Violence Risk Assessment

The definition of violence for this thesis is the one given in the HCR-20 manual by Webster et al., (1997, p. 24). They define violence as *"actual, attempted, or threatened harm to a person or persons"*. This definition is well suited to the type of risk assessments for violence that are going to be examined, since it is broad enough but still retains the focus on the issue. Among female offenders, self-destructive behavior is common, but that type of violence is in this work only of interest as a risk factor for violence towards others. By using this definition, self-destructive behavior is automatically excluded as an outcome.

Hart (1998, p. 122) defines violence risk assessment as *"the process of evaluating the individuals to (1) characterize the likelihood they will commit acts of violence and (2) develop interventions to manage or reduce that likelihood"*. The most important thing in this definition is that it defines the risk assessment procedure as a process. In reality, the assessment is an on-going process that has to be performed several times over and over again. Hart also states that the result of a risk assessment is "*likelihood*" rather than a yes/no answer, which is more true, since a 100% yes/no answer can never be given by a risk assessment (Webster et al., 1997). This definition also states that the process of risk assessments can provide information about how to prevent violence in the future (Douglas, Cox & Webster, 1999).

Aims and Design

The six papers have different designs. **Paper I** is a retrospective study which aims to validate the HCR-20**. Paper II** is a prospective study which aim to validate the HCR-20 inside a correctional institution. **Papers III** and **IV** are cross-sectional, comparative and descriptive studies which aims to find differences and similarities between men and women on the HCR-20 and the PCL:SV. **Paper V** is a cross-sectional, exploratory study which aims to describe the reliability and the validity of the PCL:SV. **Paper VI** is a comparative study which aims to investigate the inter rater reliability within a female sample with a gender perspective in relation to the assessors.

Methods

Interest focuses on two instruments, namely: (1) the translated version of the HCR-20 risk assessment instrument (Webster et al., 1997; Belfrage & Fransson, 1997) and (2) the screening version of the Psychopathy Check-List, the PCL:SV (Hart, Cox & Hare, 1995; Belfrage, 1997), which are sometimes used as checklists while performing risk assessments of violence in male offenders (Belfrage, Fransson & Strand, 2004; **Papers I, II**). These instruments are also used to some extent with female offenders who can be studied in this thesis (**Papers III, IV, V** & **VI**).

The HCR-20

The HCR-20 risk assessment instrument is a dynamic instrument which focuses on the past, the present and the future. It contains three different sub-scales, namely the historical scale (H), the clinical scale (C) and the risk management scale, for both inside the institution (R-in) and outside (R-out) (see Table 1, p. 11). All the items are scored as 0 (no), 1 (to some extent) or 2 (yes), with a total range for the instrument of R=0-40. Together, the three sub-scales with their 20 items form the HCR-20 (Webster et al., 1997).

The HCR-20 is used all over the world both in research and in clinical work (Douglas & Weir, 2003). During the period 1996-1997, the HCR-20 was introduced and implemented in clinical practice in the special forensic psychiatric clinics in Växjö and Sundsvall, Sweden. The process of implementation was performed with large-scale educational efforts and was well documented (Belfrage, 1998). The Swedish versions of the HCR-20 (Belfrage & Fransson, 1997) and the PCL:SV (Belfrage, 1997) were used.

The validity and reliability of the instrument have been examined extensively in many countries. In Sweden, some work has been done to validate the HCR-20 before taking the instrument into clinical practice. One of the first studies was conducted by Belfrage (1998), with six different raters for the same 43 patients. It showed high inter rater reliability (Kendall's W = .81) and high internal consistency (Cronbach's α = .95). These results can be compared with the results of a study conducted at the same time in Canada by Douglas and colleagues (1998). They obtained a Cronbach's α of .76 in their study. Another comparable

result is the one reported in Germany by Muller-Isbernet and Jöckel (1997), who found a mean Cohen's κ of .89 in their studies of the instrument (Douglas, Cox & Webster, 1999). Research on the instrument has been performed continuously all over the world and, in his annotated bibliography of the HCR-20 (Douglas & Weir, 2003), Kevin Douglas has collected and presented data from this research conducted on the HCR-20. The results show that the validity of the HCR-20 was found to be high in many different contexts, i.e. civil psychiatric settings (6 studies), AUC = .65-.80, forensic psychiatric settings (16 studies), AUC = .61-.85, and correctional settings (12 studies), AUC = .65-.82. The reliability was also found to be good in these studies. The Intra Class Correlation (ICC) was above .78 for the same samples. The noted Inter Rater Reliability (IRR) was calculated using several different methods, such as Cohen's Kappa (κ) or Kendall's Tau (τ), and the results were all above .61, which is good. The conclusion is that the HCR-20 appears to be a valid and reliable risk assessment instrument for these settings.

The PCL:SV

Psychopathy can be measured using the revised version of the instrument known as the Psychopathy Checklist (PCL, Hare, 1980), its revised version the PCL-R (Hare, 1991), or its screening version, the PCL:SV (Hart, Cox & Hare, 1995). The PCL-R can be translated into the PCL:SV, as described in Table 2 on p. 18. The PCL:SV consists of 12 items relating to personality traits and behaviors that occur in the psychopathic personality. All the items are scored on a three-point scale with the scores 0 (no), 1 (to some extent) or 2 (yes). The total score ranges from 0 to 24, where the diagnostic cut-off for a psychopathic personality disorder is a score of 18 or above. Scores below 12 are said to be definitely not psychopathic. The instrument contains two parts, part one that relates to the interpersonal and affective characteristics and part two that correlates with an antisocial and unstable lifestyle.

The reliability of the PCL:SV has been shown to be good in several studies (Forth et al., 1996; Nicholls, 1997; Douglas, Cox & Webster, 1999). In the PCL:SV manual (1995), the internal consistency showed a mean Cronbach's α of .84 and item homogeneity of a mean inter-item correlation above .32. The inter rater reliability was measured with the ICC for one and/or two raters. The mean weighted ICC for one rater was .84 and for two raters .92. The validity of the PCL:SV compared with the

PCL-R was found to be high. The weighted mean correlation between the total score on both instruments was .80; between part 1 and factor one it was .68 and between part 2 and factor 2 it was .81 (ibid.).

Procedure

Data were collected either as assessments based on file material or as real life *(in vivo)* assessments. Risk assessments based on file material include information available from hospital files, in which the forensic psychiatric evaluation (FPE) was included. The FPE is made following a request from a court with the aim of concluding whether or not the offender was suffering from a severe mental disorder at the time at which the offence was committed. The result of the FPE determines whether the court can sentence the offender to forensic care or to prison. Data collected in the FPE constitute a thorough review of the patients' life. The patients stay at the special FPE ward for approximately four weeks for observations and tests. The FPE report contains three expert opinions written by a psychiatrist, a psychologist and a social welfare worker. The sources used to produce the FPE report are psychiatric and other hospital files, police records, files from the court and from welfare agencies. Interviews are conducted both with the patient him/herself and with people who are of importance to the patient, i.e. family members and social workers. For both **Paper I** and partly for **Paper III,** the risk assessments were based on file information. Research conducted in Sweden on the reliability of the PCL-R with file-based retrospective assessments of the PCL-R, using the FPE as the only source, compared with a clinical expert's assessment based on interviews, showed high inter rater reliability with the ICC = .88 (Grann et al., 1998). Since that study produced a good result for the reliability of the PCL-R and the PCL-R and the PCL:SV were highly correlated, the conclusion was that file-based retrospective assessments can be used when an FPE is available. In this thesis, the retrospective risk assessments based on file material were performed by Professor Henrik Belfrage (**Papers I, III**) and Susanne Strand (**Paper III**).

At the special forensic hospital in Sundsvall, risk assessments are made on a 6-monthly basis for every admitted patient. It is required by law that individuals who are sentenced to forensic psychiatric care should have a risk assessment for recidivating into new violent crime soon after their admission. At the special forensic psychiatric hospitals,

the possibility of discharge for a patient is decided by a court of law every six months; the purpose is to evaluate whether the patient is well enough to be given short- or long-term leave or to be discharged and for this reason the Sundsvall clinic makes new risk assessments approximately every six months on every patient so that the court has the most current status for that patient. At the Sundsvall hospital, almost every patient (who has been admitted for more than four weeks) has initially been assessed within 12 months of admission since 1997. The assessments are made by a special risk assessment team, including a psychologist and a clinical assistant. At the first assessment, all file information, including the FPE, is read and an interview is then conducted with the patient. The actual HCR-20 assessment is then made by the team, together with staff members on the patient's ward who are close to the patient, according to the coding instructions in the HCR-20 (Webster et al., 1997). The HCR-20 assessment made is then given to the patients' psychiatrist who makes a written assessment. The HCR-20 assessment is also distributed to the research department at the hospital for future evaluations. This means that the HCR-20 is used in two different ways, one by the researchers and one by the clinicians. Most of the risk assessments used for this thesis are assessments that are made using this standard procedure at the institution as a part of its risk assessment. The risk assessments made in Växjö were conducted in a similar way. The assessments made at the male correctional setting were also conducted as standard risk assessment procedures and were performed by Professor Henrik Belfrage and colleagues. In the female correctional sample, the assessments were made partly as standard risk assessments performed by a psychologist, while the others were assessed as part of a research project. All risk assessments, along with some background factors, were collected and registered in a database from which the selection for each **paper** was made.

Study Population

Even though as many as 130,000 individuals a year have been convicted for committing a crime, only a small percentage were sentenced to prison or forensic psychiatric care. Of those sentenced to prison in 2003 for a violent crime (according to Sections 3, 4, 6, 8 (§5, 6), 13 (§1, 2) and 17 (§1-5) of the Swedish Penal Code), 121 (3%) were female offenders and 3,646 (97%) were male offenders, where the most common violent crime for which offenders were sentenced to prison was assault,

53% of the women and 49% of the men (BRÅ, 2004b). The average penalty time was 15 months for women and 13 for men. Only 1-2%, n=10-15, of the women sentenced to prison every year received a sentence of four years or more (Somander, 1998) compared with 3% (n=400) of the male offenders. The majority of the offenders sentenced to four years or more had committed murder/manslaughter, assault or a severe drug-related crime (BRÅ, 1995, 1998a, 2001a, 2004b). To be sentenced to a maximum-security prison, the offender has to be sentenced to at least four years of imprisonment or two years for a drug-related crime. As a result, the maximum-security prison population for women was, and still is, extremely small (Somander, 1998). Having only one maximum-security prison for women (Hinseberg, Örebro) makes the recovery and the upcoming adjustment to life outside prison much more difficult than for men, since the opportunities for close contact with their families and friends are reduced due to the long distances (Ericson, 2003).

The forensic psychiatric evaluation (FPE) is made following a request from a court with the aim of concluding whether or not the offender was suffering from a severe mental disorder at the time the offence was committed. The results of the FPE determine whether the court can sentence the offender to forensic care or to prison. In 1993-2003, 500-600 offenders underwent an FPE each year (BRÅ, 2004b). Of them, approximately 370 individuals were diagnosed with a severe mental disorder that required forensic psychiatric care. The percentage of female offenders who are sentenced to forensic psychiatric care appears to be increasing. In 1993-1998, approximately 12% (n=40) were women, while in 2003 17% (n=64) of those sentenced to forensic care were women. The crimes committed by the women sentenced to forensic psychiatric care were violent crimes according to Section 3 of the Swedish Penal Code (36-52%), arson (21-39%), theft and fraud (10-21%), violence towards a public servant (5-13%) and other crimes, i.e. drug crimes, (0-3%) (BRÅ, 1995, 1998a, 2001a, 2004b).

On average, the number of persons held in prison in 1993-2003 was 240 women and 5,000 men a year. In forensic psychiatric care, the number of female patients admitted varied between 50–100 a year compared with 300-350 men. Of these women, at least 80% were sentenced for a violent crime. In all, the female offender population that

was either held in prison or admitted to a forensic psychiatric clinic totaled approximately 300 a year compared with 5,300 men (BRÅ, 2004b).

Paper I comprised 40 male forensic psychiatric patients who had been discharged from the special forensic psychiatric hospitals in Växjö or Sundsvall in 1985-1994 and were assessed from files in 1998 by Professor Henrik Belfrage. Two groups were created, blinded to the assessor, a group which had recidivated into violent crime and one which had not, according to the police register where the follow-up period was 3-12 years. The two groups were then matched in pairs (n=42) according to age, primary diagnosis, index crime and previous violent criminality. However, during the study process, it came to our attention that 2 of the non-recidivists had recidivated into violent crime and they were therefore moved to the recidivist group. One of the recidivists had moved abroad and one of the patient's files showed that he had recidivated and, as a result, the outcome was no longer blind to the assessor, which led to the removal of these two patients. A recidivism group (n=22) and a non-recidivism group (n=18) was used, no longer matched in pairs, but still very similar according to the original criteria.

Paper II consisted of 41 randomly selected male offenders with long-term sentences placed at the Hall and Mariefred maximum-security correctional institutions. The assessments were made in November 1996–September 1998. In October 1998, a security officer employed at Hall followed up all these offenders throughout their stay at Hall and Mariefred respectively. The risk management (In) sub-scale is very dependent on the offenders' current institutional placement and, for this reason, a follow-up was only conducted for the offender as long as he stayed at the prison where the assessments were made. The mean follow-up time was 8 months, with a range of 1 to 22 months.

In **Paper III,** both male (n=85) and female (n=63) forensic psychiatric patients from the special forensic psychiatric hospital in Växjö were included, together with male patients from the special forensic psychiatric hospital in Sundsvall.

Male patients. All the male patients who were admitted to either hospital in 1998 were included in the study group (n=85). Patients admitted to the emergency wards were excluded from the study, since the length of the stay was too short to obtain adequate information. Patients who had committed pedophilic crimes were also excluded, in order to create a sample that could be compared with the female group. All the men were assessed *in vivo* as part of the risk assessment procedure at the hospital in 1998-1999.

Female patients. All the female patients admitted to the special ward for women at the hospital in Växjö in 1989-1998, with a treatment time exceeding 10 days, were included (n=63). At the time of the assessment (1998-1999), 46 women had been discharged and they were then assessed from hospital files by Susanne Strand. The other 17 women were assessed in the same way as the male patients.

Paper IV consisted of 129 female and 499 male offenders. Both groups contained three sub-groups: forensic psychiatric patients, correctional offenders and forensic psychiatric evaluees.

Female offenders

- Of the 85 female psychiatric patients, 63 were the same as in **Paper III**. An additional 9 patients were admitted and assessed by staff at the hospital in Växjö in 1998-2000. Thirteen female patients were admitted to the special forensic hospital in Sundsvall and they were also assessed by staff as part of the risk assessment procedure in 1998-2003.
- Thirty-one female offenders serving long-term sentences at the Hinseberg maximum-security institution were assessed in 1999-2000. Twenty of these assessments were made *in vivo* by the author, Susanne Strand, together with Marie Juréen-Bennedich, who is a clinical psychologist. In addition, Peter Johansson, another clinical psychologist, assessed a further 11 offenders *in vivo*.
- An additional 13 female offenders who were the subject of a forensic psychiatric examination (FPE) were assessed *in vivo* using the PCL:SV in 1998 to 2000 under the supervision of Professor Sten Levander.

Male offenders:

- The male sample comprised 219 forensic psychiatric patients, of whom 89 were placed at the hospital in Växjö, assessed *in vivo* by the staff in 1998-2001 and 130 were placed at the hospital in Sundsvall and assessed *in vivo* in 1997-2003.
- The correctional sample of 196 male offenders, of whom 146 (74%) were placed at maximum security prisons, were the subject of real-life assessments performed by Professor Henrik Belfrage and colleagues in 1996-2003.
- Another 84 male offenders who were the subject of a forensic psychiatric examination (FPE) were assessed *in vivo* using the PCL:SV in 1998 to 2000 under the supervision of Professor Sten Levander.

For **Paper V,** almost the same study group as was used in **Paper IV** (n=655, 136 females and 519 men) was used. The data were collected from the same database. The differences between the two populations were that the assessments for **Paper IV** had no missing data for any items in the instrument and that more assessments had been made at the Sundsvall hospital when the analyses were conducted for that paper. In all, the study group in **Paper V** consisted of 655 PCL:SV assessments, of which 609 (93%) were real-life assessments. Of these 655, 91 (14%) contained missing data that precluded the calculation of total or part scores, leaving a working dataset of 564 cases.

For **Paper VI,** 7 female offenders from the Hinseberg maximum-security prison were used. They were assessed as described for **Paper IV,** with the exception that both assessment teams assessed them for inter rater reliability. The correct number of participants in each study group and their sub-samples can be seen in Table 3, p. 34.

Table 3. The study groups of **paper I-VI**.

Study	Study group[1]	Instrument	Gender	Assessment[2]	N	N[3]
Paper I	FPP - file based	HCR-20	Male	(1985-1994) 1998	**40**	
Paper II	CMS	HCR-20	Male	1996-1998	**41**	
Paper III	FPP – file based	HCR-20	Female	(1989-1998) 1999	**63**	46
	FPP			1998-1999		17
	FPP		Male	1998-1999	**85**	
Paper IV	FPP	PCL:SV	Female	1998-2003	**129**	85
	CMS			1999-2000		31
	FPE			1998-2000		13
	FPP		Male	1997-2003	**499**	219
	CMS			1996-2003		196
	FPE			1998-2000		84
Paper V	FPP	PCL:SV	Female	1998-2003	**136**	82
	CMS			1999-2000		31
	FPE			1998-2000		23
	FPP		Male	1997-2003	**519**	216
	CMS			1996-2003		174
	FPE			1998-2000		129
Paper VI	CMS	PCL:SV	Female	1999-2000	**7**	

[1] FPP – Forensic psychiatric patients, CMS – Correctional maximum-security, FPE - Forensic Psychiatric Evaluees

[2]The patients were discharged from the hospital sometime during the interval in the parentheses.

[3] N for sub-samples

Statistics

Different statistical methods have been used to analyze the data in the most appropriate way. Throughout the study, when analyzing the HCR-20 and the PCL:SV at item level, non-parametric analyses for independent samples were used since the data are on ordinal level. The instrument that was most commonly used to analyze differences between groups was the Mann-Whitney U-test (**Papers I, II, III, IV, V**), which is a non-parametric two-independent-samples test. The χ^2 test was used to calculate differences in data at nominal level **(Papers I, II, III, IV, V**). To analyze descriptive data at interval/ratio level, such as age, Student's t-test was used (**Papers I, II, III, IV, V, VI**). The effect sizes were measured with Cohen's *d* (**Paper V**). In **Paper V,** correlations were calculated with Pearson's *r* and with a point biserial correlation, r_b. The point biserial correlation is a statistical procedure which is used to describe the relationship between the scores from one continuous variable and one dichotomous variable. This correlation is commonly

used in test theory in order to validate instruments. Explorative factor analysis (EFA) was used in **Paper IV** to analyze the factor structure of the PCL:SV, with the sample size being taken into consideration (MacCallum et al., 1999).

Validity analyses

To determine the validity of the risk-assessment instrument, researchers have started to use a new statistical method, the **Receiver Operating Curve analysis (ROC)** and the **Area Under the Curve (AUC)**. Mossman (1994) recommends ROC analyses, as ROC methods describe accuracy with indices of performance that are unaffected by base rates or by clinicians' biases for or against Type I or Type II prediction errors. The method has been used and recommended by other researchers, such as Rice & Harris (1995). (ROC) analyses and (AUC) were used to validate the HCR-20 in **Paper I.** ROC curves are a non-parametric method that calculates a curve based on all possible cut-offs in the material (Metz, 1978; Zweig & Campbell, 1993). This procedure is a useful way of evaluating the performance of classification schemes in which there is one variable with two categories by which subjects are classified. The **sensitivity** indicates how good the test is at detecting the true positive cases, which is the proportion of positive cases detected, relative to all positive cases. **Specificity** is the ability of the test to detect the true negative cases. The optimal cut-off point is the one that corresponds with the best accuracy to the test in which both the sensitivity and the specificity are high. The area under the curve (AUC) is the estimated effect size of the ROC curve, where an AUC = .0 is the perfect negative prediction and an AUC = 1.0 is the perfect positive prediction. An AUC = .5 is a prediction that is the same as chance alone. The AUC can be interpreted as follows: AUC = .70 means that a randomly selected individual from the positive group has a test value higher than that of a randomly chosen individual from the negative group 70% of the time (Zwieg & Campbell, 1993).

Reliability Analyses

Intra Class Correlation (ICC) is a procedure that measures agreement between items (Shrout & Fleiss, 1979). It is the Classical Test Theory (CTT) measurement (Nunnally & Bernstein, 1994). The data should be at interval/ratio level, but the importance of scale level is not that great as the results will be fairly similar. All analyses above nominal

level can be used with the ICC; if the data are at ordinal level, the possibility of underestimating the reliability increases slightly, so specific methods for ordinal scale level should only be used when there is a chance that the reliability will increase (Armelius, 1984). In **Paper V,** the Cronbach α value of the ICC was used to measure the reliability; this is a statistical procedure of internal consistency, based on the average inter-item correlation. The Cronbach α value is the expected comparative value for an infinite number of other similar studies. The mean inter-item correlation (MIC) and the corrected mean inter-item correlation (M CITC) were also used in **Paper V**.

Item Response Theory (IRT) is a reliability analysis (also called *latent trait theory*), which is a model-based measurement of test theory which in some cases is starting to replace the CTT (Embretson, 1996; Nunnally & Bernstein, 1994). The IRT is superior to the CTT in many ways, since the true score is defined on the latent trait of interest in the response pattern rather than on the actual sum of responses to individual items in the test. However, there are some problems when the IRT is used for all tests and material. The IRT requires at least 500 cases in order to be valid. Tests consisting of few items (such as the PCL:SV) can be used with as few as 200 cases. In **Paper IV,** we only had 129 women, which means that the results can only be seen as indications. The possibility of committing a type II error increases with a reduction in n (Nunnally & Bernstein, 1994). Cooke and colleagues (1997, 1999 and 2004) argue that the IRT has several advantages over the CTT when evaluating the suitability of the PCL:SV (PCL-R) in different groups. With the aim of analyzing differences between men and women, we used the three category version of Samejima´s (1969) graded model by the method of Maximum likelihood and the differential item functioning (DIF) analysis. In an IRT analyses the a-value and the b-parameters (b_1 and b_2) are calculated. The a-value is the slope of the logistic curve at the point of inflection for the trace line of the theta value. This means, that the higher the a-value is, the better the item discriminates psychopathy, where a-values above 1.0 is said to discriminate well. The b-parameters (b_1 and b_2), are the thresholds for P_0 and P_2 respectively for the instrument.

In the case of **inter rater reliability** analyses, which measure the agreement between raters or the same individuals with the same test,

two different methods were used. Kendall's τ-b (**Papers I, III**) was used most frequently, as this is a test that is less dependent on how the distribution of the agreement put in a table will occur. Kendall's τ-b is a non-parametric measure of correlation for ordinal or ranked variables which compares individuals pair wise in order to detect whether the size of variable X is the same as that of variable Y (Kohout, 1974). Possible values of τ-b range from –1 (perfect negative correlation) to +1 (perfect positive correlation), where a value of -1 or +1 can only be obtained from square tables. The critical values of τ-b follow the critical values of Pearson's *r* correlation for parametric analysis. Many different non-parametric methods have tried to be as close as possible to Pearson's *r* and Kendall's τ-b has been closest (Nunnally & Bernstein, 1994). Cohen's κ (Cohen, 1960) value is a more commonly used procedure in other comparative inter rater reliability studies, even though it is more sensitive to the distribution of scores, and this is why κ was used in **Paper V**. The κ procedure measures the difference between the observed proportion of an area of agreement between raters and the proportion of agreement expected by chance . A value of 0 indicates that the agreement is no better than chance, whereas a value of +1 is a perfect agreement. Negative values of κ are invalid and only occur when the distribution of scores is very special. If negative κ values should occur, another test should be conducted to obtain a valid correlation. Values of κ and τ give approximately the same value of correlation in larger samples, where the advantage of the τ statistic is that it is less sensitive to the distribution of scores in small samples and this is the main reason why it was used in **Paper VI**.

The statistical software used to conduct the analyses was SPSS for Windows (SPSS, 2004), Multilog (Multilog, 2002; du Toit, 2003) and MedCalc Software (MedCalc, 1993).

Ethical considerations

All studies in this thesis have been considered to be evaluations of ongoing treatment at the special forensic psychiatric clinics in Växjö and Sundsvall by the Ethics Committees at Lund, Umeå, and Mid Sweden universities. Thus, no formal applications for ethical approvements have been considered necessary.

Limitations

There could be a bias in the studies since the samples, apart from those in **Paper II,** were not randomly selected in either the correctional system or the forensic institutions. The majority of the male offenders in the correctional samples were serving time at maximum-security prisons, which indicates that these results would be valid for offenders who have committed severe criminal offences. The implications for a low-security group of offenders have not been examined in this study.

The female samples were much smaller than the male samples, mainly due to the small female offender population. As there were few participants in these samples, it is risky to make any generalizations of the results. To obtain a more valid result, follow-up studies need to be conducted on female offenders, together with continuous research on the risk of violence in women, so that the results can be generalized at a later stage. Hopefully, this thesis will contribute data and generate interest to conduct more research in this neglected area of research.

RESULTS

Risk Assessment, HCR-20

The aim of **Paper I** was to validate the HCR-20 within a Swedish group of mentally ill male patients (n=40), all of whom had been placed at special forensic psychiatric hospitals, and to determine the extent to which the HCR-20 was able to discriminate between those offenders who recidivated into new violent criminality and those who did not within two years from discharge. The predictive validity of the HCR-20 turned out to be good. The mean score for the total 40-point scale was 22.39 (SD = 6.85) for the non-recidivism group and 30.77 (SD = 7.22) for the recidivism group ($p < .001$). The historical sub-scale had hardly any predictive validity at all in this study, apart from item H7 "psychopathy". The clinical and risk management factors, on the other hand, were very important for the predictive validity.

All offenders with a score of 34 or more recidivated into new violent crime. Additionally, the two high scorers in the non-recidivism group had recidivated into new non-violent crimes, which could reduce the cut-off for recidivism into any crime to a score of 29 or more. Of those who scored between 24–28, the prediction validity was almost random. The main difference in this span (24-28) between non-recidivists and recidivists was item R5 "stress". All the offenders in the recidivism group were given a score of 2 for this item ($p < .001$). The PCL:SV also showed statistically significant predictive validity ($p = .03$), although it was not as high as the HCR-20 ($p < .001$). The AUC for the PCL:SV was .70 and as high as .80 for the HCR-20. The ROC analyses indicate cut-off scores of 29 (sensitivity .89, specificity .64) for the HCR-20 and 17 (sensitivity .89, specificity .59) for the PCL:SV.

In **Paper II,** a high-risk group of male correctional inmates were assessed with the HCR-20 and followed up for institutional violence with a follow-up time of 1-22 months (m = 8). The mean value for the HCR-20 was 26 in this sample and 30 of 41 were diagnosed as psychopaths according to the PCL:SV, md = 20, R = 5-24. Eight (20%) had committed violent acts during the follow-up period, of whom all were diagnosed as psychopaths. The HCR-20 total score had a highly significant predictive validity ($p < .001$), but, when the three sub-scales were examined, the clinical scale ($p < .01$) and the risk management scale

showed a significant predictive value (p< .004) but not the historical one. When comparing all those who were diagnosed as psychopaths (N=30) the total score (p< .007) and the risk management scale (p< .02) was still significant but neither the historical nor the clinical scale was. In the psychopathic group, the predictive validity of the clinical risk factors decreased relative to the validity in the whole study group, while the risk management factors still were of significant importance. Risk management factors were therefore the only risk factors of significance among the psychopaths in this study group.

In this study, it emerged that the violent group was older than the non-violent group (Md=43 years vs. MD=32 years), the violent group was also more impulsive and was more short-tempered, which can be seen in the higher scores in Part 2 of the PCL:SV (p< .001).

In **Paper III,** the aim was to describe the risk factors for violence among 63 mentally disordered women, to compare the result with a similar male group of 85 mentally disordered men and to study the extent to which the HCR-20 can be used in a female forensic psychiatric population. To a large extent, the risk factors of the HCR-20 were the same in both samples. There were no differences in the total HCR-20 scores, or in the H, C or R sub-scale scores. However, some differences were found for specific items. When it came to the historical risk factors, the females had a significantly lower score on items H1 "Previous violence", H2 "Young age at first violent incident" and item H5 "Substance use problems". The female sample had a higher score on item H9 "Personality disorder", which reflects the diagnostic difference between males and females in this study. On the clinical scale, men scored significantly higher on item C2 "Negative attitudes", whereas women scored higher on item C4 "Impulsivity". On the risk management scale, the only difference was found in item R5 "Stress", where women scored significantly higher than men. An analysis of the PCL:SV ratings revealed that the female group had significantly lower scores on Part 1 (p = .05) but not on Part 2. In fact, the female group had a higher mean score on Part 2 than the male group. In overall terms, the HCR-20 assessments produced very similar scores in the male and female study groups.

In addition to the HCR-20 scoring process, all forms of previous in-patient violence (defined as violent acts directed at another person, including severe threats) were noted. The female study group had committed significantly more in-patient violence than the male study group. Sixty-five per cent (N=41) of the women, compared with 38% (N=31) of the men, were noted as having committed in-patient violence ($p < .001$). A significant difference in this respect was that women more frequently committed their violent acts against the staff (62%) than against other patients (21%), while the opposite was true for men, where 31% of the men had committed violence directed at other patients and 24% towards members of the staff. There was a strong correlation between self-destructive behavior and in-patient violence in the female study group ($p < .001$) but not in the male group.

Psychopathy, PCL:SV

The aim of **Paper IV** was to investigate whether a group of female offenders displayed different psychopathic traits compared with a reference group of male offenders. Is there a difference in the construct of psychopathy between men and women as measured with the PCL:SV? Moreover, were there any differences in psychopathic traits between female and male psychopaths (PCL:SV $\leq$ 18) according to the PCL:SV? The prevalence of psychopathy was 16% in the female group and 25% in the male group (χ^2 (1) = 4.87, $p < .05$). However, when comparing the PCL:SV scores, divided into three scoring groups, (1) 0-12 points, (2) 13-17 points and (3) 18-24 points, there were no significant differences between men and women (χ^2 (2) = 4.88, ns). There were gender differences when comparisons were made at item level. Men scored significantly higher on seven items: item 1 “Superficial”, 2 “Grandiose”, 4 “Lacks Remorse”, 5 “Lacks Empathy”, 9 “Lacks Goals”, 11 “Adolescent Antisocial Behavior” and item 12 “Adult Antisocial Behavior“, while women scored higher on two items: item 7 “Impulsive” and item 8 “Poor Behavioral Control”. There were no differences on three items: Item 3 “Deceitful”, 6 “Doesn’t Accept Responsibility” and item 10 “Irresponsible”. Female psychopaths (PCL:SV score of 18 or above) scored higher on item 3 “Deceitful” and item 8 “Poor Behavioral Control” than male psychopaths, who scored higher on item 11 “Adolescent Antisocial Behavior” and item 12 “Adult Antisocial Behavior“.

When the PCL:SV scores were analyzed within gender in relation to the three scoring groups, differences were found between men and women. In the male sample, there were significant differences between the scoring groups on every item, while, in the female sample, three items, 7 "Impulsivity", 8 "Poor Behavioral Control" and 11 "Adolescent Antisocial Behavior" showed no significant differences. This indicates that, in the female group, these three items had a limited effect on the diagnosis of psychopathy.

Using an exploratory factor analysis, a different factor structure was shown for women than for men. The male offender sample had the same factor structure as the original, while women had a three-factor structure instead. The first factor was exactly the same as the original factor 2, i.e. an antisocial lifestyle, while the second factor included items 1 "Superficial", 2 "Grandiose" and 3 "Deceitful". The third factor included items 4 "Lacks Remorse", 5 "Lacks Empathy" and 6 "Doesn't accept responsibility".

An IRT analysis in **Paper IV** revealed that there was differential item functioning (DIF) between men and women, not for the a-value though but for the b-values. The 5 items, in order, 8 "Poor Behavioral Control", 7 "Impulsivity", 11 "Adolescent Antisocial Behavior", 4 "Lacks Remorse" and 12 "Adult Antisocial Behavior", were the items that actually had DIF in this study group for their b_1 and b_2 values.

The aim of **Paper V** was to analyze the structural reliability, the construct-related validity, and cultural validity generalization of the PCL:SV. The structural reliability estimates of mean inter-item correlation (MIC = .33 - .51), corrected item-total correlation (M CITC = .48 - .65) and Cronbach's α (α = .82 - .87) were all very high for the entire sample. When divided into the four factor model factor one, two and three had an acceptable reliability while the fourth factor was poor. The validity evaluation was done by measuring the relationship of psychopathy to the following factors;

Institutional aggression. The relationship between aggression (against staff, patients and combined) and the PCL:SV total score, Part 1 and Part 2 for the subset of patients/offenders for whom aggression data were available (n=188) was moderate (PCL:SV total score r = .23, AUC = .65).

Part 2 was more consistently and strongly related to all indices of aggression than Part 1. The correlation between Part 2 and aggression was relatively unchanged when Part 1 was kept constant.

Risk of violence. The correlations between the HCR-20 violence risk assessment scheme and the PCL:SV were strongest between PCL:SV Part 2 and the historical component of the HCR-20 (r = .71 - .73). Correlations for Part 2 and the HCR-20 C and R scales ranged from .47 to .52. The correlations were generally smaller (r = .19 - .51) for the relationship between Part 1 and the HCR-20 subscales (especially H and R scales), particularly for females. The correlation between the total score of the HCR-20 and the total score of the PCL:SV were .62 for women and .70 for men.

Substance use problems. Substance abuse was measured with item H5 "Substance use problems" from the HCR-20. The correlation with the PCL:SV total was .31), with Part 1 .13) and with Part 2 .41, the scores were all significant (p< .001). Of those who scored above the median on the PCL:SV, 58% (n=158/274) had definite substance use problems, compared to 34% (n=95/282) of those scoring below the median (χ^2 (2), n=556 = 40.7, p< .001).

Diagnostic categories of personality disorder versus psychosis. The PCL:SV total score was positively and significantly correlated with diagnoses of personality disorder (r = .17, p< .001, n=340) and significantly and negatively correlated with diagnoses of psychosis (r = - .10. p< .05, n=340), although both had small effect sizes. Part 1 was more strongly related to both personality disorder (r = .21, p< .001, n=340) and psychosis (r = - .17, p< .001, n=340) than was the total score. Part 2 was unrelated to diagnosis. Tests of mean differences also showed that the mean PCL:SV total score was higher for those with primary diagnoses of personality disorder (M = 13.69, SD = 5.87, n=183) compared with those with primary diagnoses of psychosis (M = 12.15, SD = 5.08, n=136), although the difference was relatively small (Cohen's *d* = .28, p = .015). The mean PCL:SV Part 1 score was higher for those with primary diagnoses of personality disorder (M = 6.53, SD = 3.53, n=183) compared with those with primary diagnoses of psychosis (M = 5.16, SD = 3.07, n=136), with a larger Cohen's *d* of .42, p< .001. The means for Part 2 of the PCL:SV did not differ between groups.

The role of gender. The PCL:SV was more strongly related to violence for females versus males and for aggression against staff versus patients/offenders. Even though the mean score was higher for males than females for the PCL:SV total score and Part 1 score , this was not the case for Part 2.

The results of the Swedish offender population in paper IV are comparable with results from other non-North American samples.

Inter rater reliability

The inter rater reliability for the HCR-20 analyzed in **Paper I** (τ_b = .69, p< .001) and **Paper III** (τ_b = .67, p< .001) turned out to be good (Table 4). **Paper VI** aimed to investigate whether female and male assessors came to the same conclusions when assessing the same female offender study group with the PCL:SV. The inter rater reliability was found to be low to moderate (κ = .30, p< .001 and τ_b = .69, p< .001, Table 4). Even though the inter rater reliability is significant when the individual assessments are examined more closely, one interesting finding emerged. In some of the cases, there were fairly large differences between the assessments made by the male and the female assessors. In two cases, the female assessors came to the conclusion of "definitive psychopathy", while the male assessor concluded "definitely *not* psychopathy" in one case and came close to the same conclusion in the other. These differences are remarkable and should not normally be found when the PCL instruments are used properly by clinicians who are well trained in using them.

Table 4. Inter rater reliability for **papers I, II** and **VI** in this thesis.

Study	**Instrument**	**Study group** **N**	**Raters** **N**	**Inter rater study group** **N**	**Inter rater reliability**[1]
Paper I	HCR-20	40 male	3	20	τ_b = .69***
Paper II	HCR-20	63 female	2	10	τ_b = .67***
Paper VI	PCL:SV	31 female	2	7	τ_b = .46*** κ = .30***

[1] p< .001***

DISCUSSION

Clinicians today have well-validated instruments to use when assessing patients for the risk of violence, if they so wish, and this is largely due to better interaction with researchers who are able to interact with their practice routines. There are instruments, such as the HCR-20 and the PCL:SV, that work like checklists for clinicians and make the compulsory risk assessment easier to make and, hopefully, more accurate. However, the question is whether violence can be predicted. The answer is yes, to some extent, but the question in itself is not good. Douglas, Cox & Webster (1999) raised the following question, which is more accurate (p. 161): *"Which groups of subjects, with which particular characteristics, followed over what periods of time, are likely to exhibit precisely defined kinds of violent behavior?"*. There is no simple answer to this question and, hopefully, we will not obtain an answer to it either! If we were able to predict violent behavior using the risk assessment methods that are currently available, we should focus our efforts on preventing violence occurring in the first place, just as Monahan suggested in 1984. Researchers and clinicians are working side by side continuously with the aim of developing methods for improved risk assessment and this will lead to improved prevention strategies, which will reduce violence in the community. Research today focuses on the validity and reliability of items correlated to violence and how these risk factors could be detected in the best way. If the risk of violence is properly assessed, the possibility of finding the most suitable treatment programs for individuals who risk committing violence will increase, thereby reducing the risk of violence. Risk assessments can be said to have developed from making risk predictions of future violence in a yes/no concept in the first generation of research, i.e. the Baxstrom cases, via the second generation of research with actuarial scales to the structured professional judgment era with a concept of assessing risk with more focus on risk prevention, as Stephen Hart states in the HCR-20 companion guide (Douglas et al., 2001, p. 15) *"the ultimate goal of violence risk assessment is risk prevention"*, where risk prevention can be said to be risk management to reduce the risk of violence from these individuals in the community. The results of this thesis support this research to a great extent, even if some results also show that there are some issues that can be argued about.

Assessing risk of violence with the HCR-20

The purpose of a risk assessment is to identify the risk of violence in individuals in order to prevent it from happening and this can be done in several ways. Hart gives a good description of what the risk assessment procedure should include (Douglas et al., 2001, p. 15), *"A good risk assessment procedure should be prescriptive; it should identify, evaluate, and prioritize the mental health, social service, and criminal justice interventions that could be used to manage a patient's violence risk"*. The HCR-20 is a checklist that can be used as a tool in the risk assessment procedure, but it is important to remember that the actual risk assessment is made by a person, not by an instrument. With the actuarial scales that were commonly used during the second generation of risk assessment, it was the instrument in itself that gave an answer to the risk of violence for a certain individual. This meant that a person had no opportunity to reduce the risk; once he/she had been assessed as a high-risk offender for violence, this would always apply. Risk assessments should, however, not be static since individuals change over time, as does the risk of committing violence. Swanson and colleagues (1994) showed that the odds ratio for committing violence within a year among 10,066 respondents from the Epidemiological Catchment Area (ECA) Data who had delusions was 2.6 and, with the combination of hallucinations, the risk increased to 4.1 compared with those who reported no psychiatric symptoms. By giving the proper treatment, the risk of hallucinations and delusions will decrease and with it, hopefully, also the risk of committing violence.

The HCR-20 has been shown to be a valid and reliable checklist to use while performing risk assessments for violence (Douglas & Weir, 2003). The results of the studies in this thesis support the theory that the HCR-20 can be used in different contexts for both male and female populations with valid and reliable results (**Papers I, II** and **III)**. **Paper I** contributed some new information in the area of risk assessment. Most of the instruments used previously, such as the VRAG (Harris, Rice & Quinsey, 1993), considered mainly historical data, but, when specific items were considered, it emerged that it was the clinical and the risk management items that were the discriminators in **Paper I**. Apart from psychopathy in **Paper I,** none of the historical items differed significantly between the recidivists and the non-recidivists. Also in **Paper II,** the clinical status of the patient and the risk management

factors appeared to be of greater importance than the historical factors. This means that risk assessments need to be made continuously in order to be valid and also that the risk of violence in severely mentally disturbed offenders can be reduced with the right treatment. Just as Hart says, risk assessments need to focus on managing the risk of violence (Douglas et al., 2001). Institutions in both forensic and correctional settings should have rehabilitation programs for offenders with the primary goal of reducing the risk of future violence. It is very important to detect the kind of risk the individual runs so that programs can be chosen on an individual basis to produce the maximum effect in terms of reducing the risk.

Psychopathy is a well-known predictor of violence in most described populations, no matter how it is measured (Hart, Kropp & Hare, 1988; Hare, 1991; Salekin, Rogers & Sewell, 1996; Douglas, Cox & Webster, 1999). The PCL:SV was used in this thesis as the diagnostic tool and it showed a strong correlation with violence both outside the institution (**Paper I**) and inside (**Papers II, III, V**) in Swedish offender populations. Both the validity and the reliability of the PCL:SV were shown to be strong in **Papers I-V** and it can therefore be used as a risk assessment tool in Swedish offender populations.

When it comes to psychopathy and treatment few successes have unfortunately been reported. The results were poor, both for men (Ogloff, Wong & Greenwood, 1990; Harris, Rice & Cormier, 1991; Salekin, 2002) and women (Richards, Casey & Lucente, 2003). Instead of being better, the psychopaths' disorder worsened, as they acquired more tools to use when manipulating people (Ogloff, Wong & Greenwood, 1990). Does this mean that we should lock them up and throw away the key? The answer to this question is definitely "No", although those studies conducted to determine the effect of treatment on psychopathy report sad figures, with no improvement or even worse disturbances in their behavior. Some programs have attempted to reduce the immediate risk of violence and this is better than nothing. In the evaluation of individual treatment programs in the Swedish prison, Hall, male psychopaths showed no improvement in their psychopathic disorder, but they showed a major improvement when it came to violence. They were much calmer in the institution, which means that, with an adequate occupation for the psychopath, it might be possible to reduce

the risk of violence inside the institution (Belfrage, Fransson & Strand, 2004). If there is a vision of no violent crime at all, we might be disappointed by results that show just a small decrease, but, with the psychopathic personality disorder, for example, a decrease of any kind must be regarded as positive. While assessing risk, we might be able to profile different risk groups that require different risk management programs in order to reduce the risk of violence.

At the Special Forensic Clinic in Sundsvall, risk assessments are made continuously every six months as a matter of routine for every patient that is admitted. The resources and the opportunities to make these assessments within the forensic setting are better than those within the correctional system, even if it is important to make follow-up assessments in order to obtain valid results. If the first assessment is made within the first six months of admission, the performance of a follow-up assessment after approximately one year should be mandatory in order to be able to collect more data about the inmate and then also make a more valid assessment of his/her potential for being granted short or long-term leave. If a second assessment were made, it would give the inmate the opportunity to "lower" the risk of violence if he/she behaves well. It would also give the inmates the motivation to engage in motivation programs and other treatments that can be offered by the institution. They would then have an opportunity to reduce the risk by themselves. Giving the inmates some control of their destiny would hopefully make them more motivated and lower the risk inside the institution. As things currently stand at Swedish correctional institutions, the risk assessment made at the beginning of inmates' sentences is the one that determines the special condition for the inmate, including their possibilities to short and long-term leaves. If the inmate is assessed as running a high risk of violence his/her opportunity for leave is therefore restricted, and the motivation to behave well decreases. It could perhaps lead to less violence inside the institution if the inmate knew that he/she needed to behave well to get "good results" in the second assessment in order to be given better terms.

Differences and similarities in male and female offenders

Risk of violence

Risk assessments for violence are made on a daily basis in the correctional system with the same procedure, regardless of the gender of

the person being assessed, and the same risk factors are used, even though they originate from research conducted on men (Monahan, 1981; Harris, Rice & Cormier, 1993; Archer, 1994; Monahan & Steadman, 1994; Webster et al., 1994; Webster et al., 1995; Borum, 1996; Webster et al., 1997; Belfrage, 1998; Boer et al., 1998; Douglas, Cox & Webster, 1999; Belfrage & Douglas, 2000; Belfrage, Fransson & Strand, 2004). Few studies have been conducted on validating the accuracy for female samples in different risk assessment methods, compared with those conducted on male samples (Monahan & Steadman, 1994; Forth et al., 1996; Nicholls, 1997; Salekin et al., 1998). The first step towards creating reliable risk assessment methods for women can be to compare the female offenders with the male offenders. The similarities and differences give us more tools to work with when attempting to understand female violent criminality. In **Paper III,** there were few gender differences and they could be explained by different diagnostic criteria, where women had more personality disorders (e.g. borderline), while men suffered from psychosis as their main diagnosis. This indicates that the risk factors were similar for men and women. However, it is important to remember that this was not a follow-up study like **Papers I** and **II**. Even though the risk items appear on the same level for both male and female patients, we do not know whether the correlation to violence is the same. In **Paper V,** it is possible to see that the correlation between violence and psychopathy inside the institution was larger for females than for males. On the other hand, in her study, Nicholls (1997) found that female patients generally had lower scores on the HCR-20 than male patients**,** but this study was conducted in a civil psychiatric setting compared with the forensic setting used in **Paper V.** Nicholls, Ogloff & Douglas (2004) showed that there was a moderate to strong correlation between the HCR-20/PCL:SV and inpatient violence for women. Even though there were some contradictory results, the validity of the HCR-20 in terms of violence inside the institution can be said to be good. How well it works for violence outside the institution is yet to be explored, even though Nicholls, Ogloff & Douglas (2004) found some preliminary results that indicate that the predictive validity of the HCR-20 and PCL:SV for female civil psychiatric patients was good. More studies need to be conducted to establish the validity and, to do this, it is important to determine the mechanisms behind female violence in order to figure out

more effectively whether the validity of the risk factors in the HCR-20 is also high in female populations.

Women are less violent than men outside institutions. In 2003, 11% (N=1,250) of those convicted for a violent crime committed *towards another person* (according to Sections 3, 4 and 6 of the Swedish Penal Code) were committed by a women (BRÅ, 2004b). However, violence among women, especially young women, is increasing at a faster rate than male violence, which indicates that women are taking on more male behaviors. The reason why women are less violent than men has not been fully established. Some causes could be different gender role patterns, such as opportunities for violence, alcohol drinking patterns and physical strength (Adler, 1975; Tiby, 1990; BRÅ, 1999). A different alcohol drinking pattern among women may result in alcohol abuse and violence not having the same correlation to violence as they do for men, which could imply that there might be some differences in the validity of item H5, "Substance use problems", in the HCR-20. Another reason that has been discussed is that frustration and stress appear to be more relevant for female violence, rather than a threat to power, status and gender role identity, which is known to be of great importance for male violence (BRÅ, 1999).

The more rapid increase in violence among women compared with men could be due to some extent to the fact that gender role patterns are becoming more similar, especially when it comes to alcohol. Women's alcohol drinking behavior has both changed and increased. Female drinking behavior is becoming more similar to male drinking behavior, which includes drinking together with men. Women also tend to go out to drink at clubs more frequently (Tiby, 1990). One third of all violent crimes are reported to have been committed inside or adjacent to places of entertainment (BRÅ, 1998a, 2001b, 2004b). One point that indicates that this explanation is correct is that violence against an unknown person is increasing more rapidly for women than violence towards others (BRÅ, 2004c). For example, more than 93% of the female killers who killed a stranger in Finland were under the influence of alcohol or illicit drugs at the time of the murder, even though the majority of victims of female deadly violence are still family members or close acquaintances (80%), where the male partner is the most common victim (BRÅ, 2004b), and this trend is similar in many countries. In 1976, Raskó

presented data showing that two thirds of victims were persons with a close relationship with the killer, where 40% were a husband or common-law husband, and, since the 1970s, the numbers have been relatively stable. In Finland, Weizmann-Henelius, Viemerö and Eronen (2003) reported similar results, where 90% of the homicidal victims of females were known to the perpetrator. Sweden is a relatively small country with its 9 million inhabitants, but the crime rate for murder/manslaughter (10%) committed by women appears to be following the base rates in other countries in Europe, such as Norway, Finland and Denmark (von Hofer, 1997), and in North America, where, in the USA, 10.8% of those arrested for murder in 1994 were women (Chesney-Lind, 1997). Since the crime rate for violence appears to be the same in many countries, the fact that females have a lower base rate than male perpetrators could then be seen as a gender issue rather than a cultural issue. To be able to make valid risk assessments for women, the relationship between the risk factors on the HCR-20 and female violence needs to be investigated further, even if the results presented in **Paper III** support the assumption that it will work. A proper validation with recidivism data needs to be performed in a female offender population.

There are, however, major difficulties when it comes to following up females in terms of recidivism into violent crimes. The hidden statistics relating to female violence are thought to be high, since most of the victims of female violence are family members and they only report the violent crime on a small scale. This means that following up women in the police register, as is done with men with high accuracy, would produce a bias. Following up women inside institutions is easier, as the environment is controlled; however, the correlation between inside and outside violence is not clear. To be able to follow up women, a long-term prospective study with follow-up interviews of the women and their families needs to be conducted.

Psychopathy

Since psychopathy may be the most important risk factor for violence in male perpetrators, it is interesting to see whether it has the same correlation in female offender populations. **Paper V** reveals that the PCL:SV is able to discriminate between those women who are at higher risk of institutional violence. The question of whether psychopathy is also a risk factor for violence outside the institution when it comes to

women needs to be established in another study since there are some results that contradict this. In their study of psychopathy and recidivism among female inmates, Salekin and colleagues (1998) came to the conclusion that psychopathy, as a personality disorder, was less predictive of later recidivism for women (AUC = .63) than for men. One reason that could explain some of the results was that they discovered that the personality–based criteria for psychopathy (Cleckley, 1941, 1976; Hare, 1991; Hart, Cox & Hare, 1995) appeared to be moderately related to recidivism for women. The structural reliability of the PCL:SV was shown to be high in **Paper V** for both men and women in all sub-samples. One conclusion in **Paper V** was that the results of the study support the results of North-American studies; the cross-cultural differences were very low. Since there were comparable results cross-culturally, the comparisons with other female studies have higher validity as it can be concluded that differences between male and female offenders were more likely to be a result of gender differences rather than cross-cultural differences.

However, even if psychopathy is also a risk factor for women, the question is whether psychopathic behavior is the same among women as it is among men. **Paper IV** shows that there were gender issues associated with psychopathy, some of which will be discussed here. In **Paper IV,** it was shown that men lacked remorse and empathy to a higher degree than women and accepted responsibility to a lower degree. Women tended to start their antisocial behavior later in life, which can also be seen in other studies (Robins, 1966; Silverthorn & Frick, 1999). No matter how antisocial behavior is defined, men have consistently been found to be antisocial more often than women (Sigvardsson et al., 1982; Hart, Hare & Forth, 1994; Mulder et al., 1994; Nicholls, 1997). However, since women had significantly less behavioral control than men, there was no significant difference between the two samples in factor two of the PCL:SV. The same results can be seen in **Paper V.** These results can be seen in other studies of women and psychopathy (Rutherford et al., 1998; Strachan, Williamson & Hare, 1990).

Male psychopaths (**Paper IV**) scored significantly higher on item 11 "Adolescent Antisocial Behavior" and item 12 "Adult Antisocial Behavior" than female psychopaths. When examining the definition of

item 11 "Adolescent Antisocial Behavior" in the PCL:SV manual (Hart, Cox & Hare, 1995, p. 30), which is:

"*People who score high on this item had serious conduct problems as an adolescent. These problems were not limited to only one setting (i. e., occurred at home, at school, and in the community) and were not simply the result of childhood abuse or neglect (e. g. running away to avoid beatings, stealing food when it wasn't available at home). Such people frequently were in trouble with the law as youth or minor, and their antisocial activities were varied, frequent, and persistent*",

and the definition of item 12 "Adult Antisocial Behavior" in the PCL:SV manual (Hart, Cox & Hare, 1995, p. 30), which is:

"This item describes people who frequently violate formal, explicit rules and regulations. They have had legal problems as an adult, including charges or convictions for criminal offences. Their antisocial activities are varied, frequent, and persistent",

it is clear that it is possible to retain a (0) even if the patient has a diagnosis of ASPD according to the criteria in the DSM-IV. The definition of antisocial behavior in the PCL:SV should follow the criteria for ASPD, so that people will obtain high scores (2) if they retain a diagnosis of ASPD. One conclusion is that, in order to be able to obtain high scores (2) for the two items, the assessed individual must have a criminal antisocial lifestyle to some extent. However, research shows that women who are diagnosed with an ASPD largely engage in other antisocial activities, especially as children and adolescents, and will therefore not obtain high scores (2), even if they have an antisocial lifestyle (Rutherford et al., 1995; Robins, 1966; Silverthorn & Frick, 1999).

So why do women have another antisocial behavior? One explanation could be that girls learn at an early age that social relationships are more important for power and status in the female peer group than physical strength. Mothers tend to discuss feelings more with their daughters than with their sons and parents generally encourage their daughters on a larger scale to understand other people's feelings so that they can more easily understand how their own behavior impacts on others (Dunn, Bretherton & Munn, 1987). Girls

learn among their friends that rejecting others and destroying other people's social relationships is a way of acquiring power in their peer group. In the case of a psychopathic girl, this will provide tools for her to get what she needs and she will probably develop this skill to acquire even more power when she knows that it works (Odgers & Moretti, 2002). It can be difficult, however, to see her true meaning when she knows how to manipulate others with feelings and can, in many ways, get her needs satisfied without physical violence. Item 3 "Deceitful" was one of two items where female psychopaths scored higher than male psychopaths in **Paper IV**; this may be for the reason that has just been given. A female psychopath can, however, threaten physical violence and show a hot temper with poor behavioral control, but she does not have to implement her threats since people around her, mostly family members, fear conflicts with her and she will then get what she wants anyway. Many of the victims of her violent behavior will have been included in her closest relationships (BRÅ, 2004b). This, together with the borderline personality disorder diagnosis, could be the explanation why female psychopaths in **Paper IV** also had significantly higher results for item 8 "Poor Behavioral Control" than male psychopaths. In 1966, Robins found that only 12% of girls compared with 50% of boys with behavioral problems were subsequently diagnosed as psychopaths. It would therefore be true to say that there were strong indications that early behavioral problems were of less importance in the development of psychopathy in women compared with men.

Another explanation is that men and women may have different ways of expressing aggression, as children, adolescents and adults (Silverthorn & Frick, 1999; Moretti, Holland & McKay, 2001; Odgers & Moretti, 2002). Even girls with the diagnosis of Attention-Deficit Hyperactivity Disorder (ADHD) display lower levels of hyperactivity and externalizing behaviors, such as conduct problems, whereas they have more social problems than boys. They also run a significantly higher risk of undergoing a psychiatric admission later in life than boys (Dalsgaard et al., 2002). In the case of overt aggression, boys are more aggressive than girls, but, when it comes to covert aggressive behavior, such as damaging others through social relationships, like gossiping, rumor spreading and other forms of behavior which are designed to damage another person's reputation or social relationships, girls may be as aggressive as boys. This kind of behavior, including the rejection of

peers and social exclusion, has been found to be more characteristic of girls than of boys in studies of children and adolescents (Crick & Grotpeter, 1995). Crick and Grotpeter (1995) also found in their study that, when measuring aggression, boys were more overtly aggressive and girls were more relationally aggressive, but, when assessing aggression as one behavior, there were no gender differences. Young adults, both male and females, who are described as relationally aggressive have been reported to have difficulties with anger management (Werner & Crick, 1999) and it has also been shown that girls who are relationally aggressive are also more likely to be overtly aggressive (Odgers & Moretti, 2002), which means that relational aggression can be seen as a risk factor for violence. In their study of psychopathy in psychology students, Miller and Lynam (2003) reported that the correlation between psychopathy and relational aggression was stronger for female students (r = .42, p< .01) than for male students (r = .19, p< .05). The present thesis supports the theory that the differences found in the PCL:SV could also be due to some extent to gender differences in expressing aggression, where the PCL:SV picks up the aggressive behavior differently for men than for women. Antisocial girls have been reported to be more relationally aggressive and to have more of a parasitic lifestyle than a criminal lifestyle, which makes the definition of the items relating to antisocial behavior in the PCL:SV instrument more a definition of male adolescent antisocial behavior (Silverthorn & Frick, 1999; Odgers & Moretti, 2002).

In the sub-sample of psychopaths in **Paper IV,** in which all the participants were sentenced or suspected of a crime as adults, a significant difference for item 12 would not be expected. Most likely, when the female psychopaths in this sample scored (1), the item applied to a certain extent, since they were sentenced for a crime, but, to score high (2), the antisocial behavior needs to be varied and frequent according to the definition and only one criminal offense is not enough to obtain a high score (2). One aspect of scoring antisocial behavior differently in men and women is that the assessor might rate women lower on these items in which the female antisocial lifestyle is compared with the male antisocial lifestyle. If the definitions were more distinct, the items of antisocial behavior would be more valid for women since it is possible for an individual to be diagnosed with an ASPD using the DSM-IV manual and still not meet the criteria for antisocial behavior in

the PCL:SV instrument. Antisocial behavior among women has been reported in several studies (Robins, Tipp & Przybeck, 1991; Mulder et al., 1994; Rutherford et al., 1995) to be a behavior that focuses more on being manipulative and impulsive, rather than being violent and criminally active. It might therefore be necessary to redefine antisocial behavior in the PCL:SV and also to question its diagnostic validity for psychopathy in women.

Even though some women have the same psychopathic traits as men, they do not generally act them out as much and their antisocial behavior is less severe. Women can satisfy their needs in many cases with relational aggression. It appears that females might have a slightly different psychopathic profile than men. In the factor analysis made by Salekin, Rogers and Sewell (1997), the original two-factor model did not fit their female offender sample; even if the cord of the two factors was the same, the items differed from the original. An item like "Promiscuous Sexual Behavior" loaded on factor two in their study and thereby indicated the importance of describing the antisocial lifestyle of women differently; this item was excluded when constructing the PCL:SV. It can be established in a great deal of research that psychopaths have some kind of antisocial behavior, even though the evidence for antisocial behavior as a diagnostic criterion or as a result of psychopathic traits can be argued about (Hare, 2003; Cooke & Michie, 2004). In this female population, adolescent antisocial behavior appears not to be necessary for the diagnosis as it is described in the literature.

The results of this thesis support the theory that Cooke & Michie (1999) formulated in their work with item response theory analyses that, instead of the two-factor model of the PCL-R, a three-factor model fitted the data better. Jackson et al., (2002) also confirm this theory of a three-factor model for female offenders with their sample of 119 female inmates. The outcome of the ongoing debate about whether psychopathy should be seen as a diagnosis divided into two, three or four underlying factors is yet to come (Hare; 2003; Cooke & Michie, 2004). For the PCL:SV, the three-factor model is shown in Table 5.

The results of this and other studies of psychopathy (Rutherford et al., 1995; Hamburger, Lilienfeld & Hogben, 1996; Salekin, Rogers & Sewell, 1997; Rutherford et al., 1998) suggest the need for more research

on female aggressive behavior and the psychometric properties of existing instruments that are used to assess psychopathy in women. In their review of psychopathy in female samples, Vitale & Newman (2001) conclude that the reliability shown for the instrument is well established, but the evidence for its validity is less clear. Later on Vitale and colleagues (2002) examined both the reliability and the validity in 528 female offenders with good results, however, the low base rate (9 %) makes them raise the following question (p. 202): " *…either psychopathy is less prevalent in females than in males or the PCL-R is not adequately assessing the construct in female offenders*." It seems that for every question answered about female psychopathy two new ones emerges. What is clear though is that there has to be more research done before generalizing the data.

Table 5. The two-, three- and four factor model of the PCL:SV.

PCL:SV	FACTOR MODEL		
	Two[1]	Three[2]	Four[3]
1. Superficial	1	1	1
2. Grandiose	1	1	1
3. Deceitful	1	1	1
4. Lacks Remorse	1	2	2
5. Lacks Empathy	1	2	2
6. Doesn't Accept Responsibility	1	2	2
7. Impulsive	2	3	3
8. Poor Behavioral Controls	2	-	3
9. Lacks Goals	2	3	3
10. Irresponsible	2	3	4
11. Adolescent Antisocial Behavior	2	-	4
12. Adult Antisocial Behavior	2	-	4

[1] Hart, Cox & Hare, 1995. [2] Cooke & Michie, 2001. [3] Hare, 2003

Male and female assessors

The inter rater reliability found for **Paper I** for men and **Paper III** for women was good and followed previous research results (Belfrage, 1998; Douglas, Cox & Webster, 1999). This was very much an expected finding, since the HCR-20 has been shown to have excellent inter rater reliability in studies of this kind that have been published to (e.g. Douglas, 1996; Douglas, Ogloff & Nicholls, 1997; Wintrup, 1996; Belfrage, 1998). However, the inter rater reliability for **Paper VI** was

poor, $\kappa = .30$ ($p < .001$), which was a significant correlation even though it was low. The differences can be due to several things; firstly, it must be remembered that the context for the interviews was different for the two teams, secondly, the male psychologist performed formal assessments, while the female team assessed the women for research purposes and, thirdly, there were two female raters while the male rater was alone.

One important, perhaps the most important, factor for the poor correlation in **Paper VI** was the gender of the assessor. Even if the sample was extremely small (n=7), there might be a problem with the gender of the assessor of which we are not aware. The female assessors assessed the women as more psychopathic and running a higher risk of violence than the male assessor did. Of seven cases, there were major disagreements in three cases. In all three cases, the male rater assessed few psychopathic traits, while the two female raters assessed several psychopathic traits. The disagreement in these three cases was interesting to examine in greater detail. It emerged that both assessing teams agreed on factor one but not, surprisingly, on factor two. The female assessors had a tendency to overestimate the antisocial lifestyle. As Mulder and colleagues (1994) discovered in their study of ASPD, the frequency and the severity of female antisocial traits were less for women than for men and there could therefore be difficulties discovering how psychopathic the women were compared with men. As described earlier, the PCL:SV is open to interpretation in item 11 and item 12 and it may be the case that the female assessors found it easier than the male assessors to understand female antisocial behavior as deviant, simply by comparing gender roles in general. Another aspect of the gender of the assessor is that many of the female offenders have been taken advantage of by men, both physically and/or sexually, prior to their conviction and their mistrust of men has been aroused. This could mean that the female offenders had some problems opening up to the male assessor and may therefore have withheld important information from him.

Not much research has been performed on the effect of interviewer gender. In the PCL-R manual (Hare, 2003, p. 52), the author claims that there would be no difference in the inter rater reliability when taking gender into account, at least in the case of men, but that more research in the area is warranted, especially for female offender populations. Many

of the female offenders have been sexually assaulted by men either as a child or as an adult. In their study of 474 children (aged 4-14 years), Lamb & Garretson (2003) reported that (p. 157) *"Girls of all ages provided more information in response to directive questions posed by female rather than male interviewers whereas boys did not respond differently to male and female interviewers"*. Even though this study was performed on children and young adolescents, the results may be the same with adult women. From **Paper VI,** the conclusions were that it would be preferable for at least one of the assessors to have the same gender as the person being assessed in order for the assessment to produce the most valid result, at least in assessments of female offenders.

Conclusions

- The HCR-20 and the PCL:SV are instruments that have shown high reliability and validity in both male and female offender populations in Sweden and they can therefore be used in risk assessments with high accuracy in mentally disordered populations.
- It has been shown that, in male offender populations with severe violent criminality, the clinical and risk management factors are of greater importance than the historical factors, with the exception of psychopathy, when it comes to assessing the risk of future violence.
- The PCL:SV has revealed some gender differences, mainly in antisocial behavior, that need to be considered when assessing women for psychopathy in order to obtain more valid results. In spite of this, a great deal of work still remains to be done on validating psychopathy for female populations. The results of this thesis indicate that, when working with the PCL instruments, several aspects need to be considered. They include:
    - a different factor structure, two, three or four factors
    - a lower cut-off for women
    - redefining antisocial behavior
- The aspect of the gender of the interviewer might have a greater impact on the final assessment when assessing women for psychopathy than it has for men. Research in this area is limited and the subject needs to be investigated in more detail to obtain more valid results in female offenders.

Even though this was a relatively small sample of female offenders, the results of the thesis provide an indication of how the HCR-20 and PCL:SV instruments work in female populations. Since only a few studies have been made of risk assessments of female offenders compared with the massive research on male offenders, it is very important to conduct more research on female offenders before generalizing any results. Hopefully this thesis will contribute results that could lead to more reliable and more valid risk assessment methods for female offenders as well.

IMPLICATIONS FOR VIOLENCE RISK ASSESSMENT

When making risk assessments for violence this thesis has showed that the HCR-20 instrument, including the PCL:SV, is a valid and reliable method to use in Swedish offender populations, for both males and females. There are indications that the psychopathic profile for women might look somewhat different than for men. Also, there might be of greater importance than previously known to consider the gender of the assessor when making risk assessments for female offenders. The suggestion is made that at least one assessor should be female when assessing female offenders.

It has also been shown that risk assessments for violence preferably should be done continuously to get the most valid results, since treatment have various effects on clinical and risk management, dynamic, risk factors. These risk factors have been shown to play an important role when assessing risk in mentally disordered offender populations.

IMPLICATIONS FOR FURTHER RESEARCH

The actual validity of the HCR-20 instrument for female populations is yet not fully established, mostly due to the low recidivism rate in female offenders. It would be of great interest to do a prospective follow-up study of female offenders in order to examine this relationship further.

It would also be interesting for future research to investigate the psychopathic profile in women, not only in offender populations. Questions one might ask could be if there should be a special instrument for assessing psychopathy in women, or if special definitions of the psychopathic behavior is needed, or if the actual assessment of psychopathy with the PCL instruments is the best way to detect this disorder in both male and female populations. Maybe the definition of psychopathy needs to be redefined?

Another research area of interest is that of gender of the assessor. The effect of this matter has not by far been examined.

SVENSK SAMMANFATTNING – SWEDISH SUMMARY

Strand, S. (2006). *Violence Risk Assessment in Male and Female Mentally Disordered offenders – Differences and Similarities.* Sundsvall, Sweden: Mid Sweden University, Department of Health Sciences. ISBN 91-85317-21-7.

Syftet med föreliggande avhandling är att validera riskbedömnings-instrumentet HCR-20, och screeningversionen av psykopatichecklistan (PCL:SV) för svenska populationer inom kriminalvården och rättspsykiatrin, samt att utforska likheter och skillnader i att bedöma risk för våld av manliga respektive kvinnliga psykiskt störda förövare.

Riskbedömningarna som har utförts för samtliga sex delstudier i detta arbete är gjorda av utbildad och tränad personal på instrumentet HCR-20, där PCL:SV har använts för att diagnostisera psykopati. Undersökningspopulationerna består av både manliga (N=40-519) och kvinnliga (N=7-136) psykiskt störda förövare inom kriminalvård och rättspsykiatri.

Resultaten visar att både validiteten och reliabiliteten för både HCR-20 och PCL:SV är god och stödjer internationell forskning kring risk för våld. Den kliniska delskalan och riskhanteringsdelskalan i HCR-20 har i en rättspsykiatrisk högriskpopulation samt i en högrisk population inom kriminalvården visat sig ha bättre prediktiv förmåga än den historiska delskalan, med undantag för psykopati. Ett annat fynd i avhandlingen är att det finns fler likheter än skillnader mellan manliga och kvinnliga förövare vid bedömningar gjorda med HCR-20 medan motsatsen är fallet för PCL:SV, där det utåtagerande antisociala beteendet står för den huvudsakliga skillnaden, vilket innebär att bedömare tenderar att underestimera psykopati bland kvinnor. Ett annat fynd är att det kan finnas anledning att tro att kön på bedömare kan ha större effekt på riskbedömningar för våld än vad som tidigare antagits när det gäller kvinnliga förövare, där rekommendationen är att minst en bedömare bör vara kvinna när kvinnor skall riskbedömas för våld.

Konklusionen är att HCR-20 och PCL:SV kan användas för svenska populationer inom kriminalvården och rättspsykiatrin med valida och reliabla resultat för både manliga och kvinnliga psykiskt

störda förövare, vilket innebär att föreliggande arbete stödjer riskbedömningsmetoder för våld som grundar sig på strukturerade professionella bedömningar för att förebygga och förhindra våld i samhället.

Keywords: Risk assessment, HCR-20, psychopathy, PCL:SV, female offenders, mentally disordered offenders, antisocial behavior, violent recidivism

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