Risk Management
The Role of Clinical Factors in Violent Behaviour

Ulrika Landblom Hiscoke
RISK MANAGEMENT

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ABSTRACT

**Background:** The relationship between clinical factors and reoffending in psychiatric and correctional populations is unclear, with a lot of contradictory results and some clinical areas lacking in research. The overall aim of this thesis was to add to this knowledge-base within the framework of risk assessment and management. Paper I investigated the association between self-assessed personality disorder and reoffending. Paper II investigated the association between clinical factors and aggressive behaviour in patients in psychiatric after-care. Paper III described the development of a structured method for risk management, SORM, the instrument used to collect data on dynamic risk and protective factors and reoffending, presented in papers IV and V.

**Methods:** Paper I was a prospective follow-up of 168 offenders who underwent court-ordered pre-sentencing psychiatric evaluation in Sweden. The DIP-Q self-assessment instrument was used, and mean time-at-risk in the community at follow-up was 3 years. Paper II was a prospective follow-up of 128 psychiatric inpatients one year into their after-care. Clinical factors were assessed at discharge and after six months in the community. Paper III described the development of a protocol for monitoring and managing risk in the community; SORM. Paper IV was a prospective, once-per month, two year follow-up of discharged forensic psychiatric patients using the SORM. Paper V was a retrospective case-control study of rapidly recidivating violent offenders who had been in the community less than two years before being charged with new violent offences.

**Results:** An association was found between self-assessed antisocial and schizoid personality disorder and reoffending (paper I), and between ASPD, and positive psychotic symptoms, especially so called TCO symptoms, and aggressive behaviour for psychiatric patients in after-care (paper II). The clinical factors of the SORM were the ones that best predicted the outcome criteria of reoffending or risk situations (paper IV) and reoffending among violent offenders (paper V).

**Conclusions:** The results from the four clinical follow-up studies I-II, IV-V examined the relationship over time between clinical factors and offending from different viewpoints, all of which underlined the relative importance of clinical factors for the risk of recidivism. The need for new research approaches to build on risk prediction research and develop structured comprehensive risk management aids that focus more on dynamic, clinical factors is discussed.

**Keywords:** clinical risk management, forensic psychiatry, mental disorder, personality disorder, psychopathy, risk assessment, schizophrenia.
LIST OF PUBLICATIONS


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<td>ADUD</td>
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<td>APA</td>
<td>American psychological association</td>
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<td>ARAI</td>
<td>Actuarial risk assessment instrument</td>
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<td>ASPD</td>
<td>Antisocial personality disorder</td>
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<td>AUC</td>
<td>Area under the curve</td>
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<td>BVC</td>
<td>Bresn violence checklist</td>
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<td>CAPP</td>
<td>Comprehensive assessment of psychopathic personality</td>
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<td>COMET</td>
<td>Contextual factors that mediate violence risk</td>
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<td>DSM</td>
<td>Diagnostic and statistical manual of psychiatric disorders</td>
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<td>DVRAG</td>
<td>Domestic violence risk appraisal guide</td>
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<td>ECA</td>
<td>Epidemiological catchment area study</td>
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<td>EARL</td>
<td>Early assessment risk list</td>
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<td>ERASOR</td>
<td>Estimate of risk of adolescent sexual offence recidivism</td>
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<td>HCR-20</td>
<td>Historical, clinical, and risk management checklist</td>
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<td>ICD</td>
<td>International classification of disorders</td>
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<td>MMD</td>
<td>Major mental disorder</td>
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<td>ODARA</td>
<td>Ontario domestic assault risk assessment</td>
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<td>OR</td>
<td>Odds ratio</td>
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<td>PCL</td>
<td>Psychopathy checklist</td>
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<td>PD</td>
<td>Personality disorder</td>
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<td>PPD</td>
<td>Psychopathic personality disorder</td>
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<td>PTSD</td>
<td>Post traumatic stress disorder</td>
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<td>ROC</td>
<td>Receiver operating characteristic</td>
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<td>RSVP</td>
<td>Risk for sexual violence protocol</td>
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<td>SAVRY</td>
<td>Structured assessment of violence risk in youth</td>
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<td>SCJ</td>
<td>Structured clinical judgment</td>
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<td>Structured outcome assessment and risk monitoring evaluation</td>
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<td>SVR-20</td>
<td>Sexual violence risk</td>
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<td>TCO</td>
<td>Threat and control override symptoms of psychosis</td>
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<td>VRAG</td>
<td>Violence risk assessment guide</td>
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<td>WHO</td>
<td>World health organisation</td>
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1 BACKGROUND

The prevention of reoffending is one of the primary objectives in forensic psychiatric and correctional settings. This is typically done by working with the mental health issues connected to the offence-pattern, in conjunction with the common social functioning issues that need to be addressed with all offenders with an antisocial lifestyle. This is typically achieved within the framework of a treatment plan, where security level and control measures, such as drug testing or limited access to potential victims, are put in place following an analysis of the nature and severity of current and previous offending. Decisions about security level and the content of the treatment plan are usually made following a more or less structured and comprehensive form of evaluation. The process and form of evaluation may or may not have been validated on offender-groups that match the client being assessed.

1.1 RISK ASSESSMENT

The forensic assessment field has undergone fundamental changes in the past fifty years that has seen it evolve from being the work of individual clinicians making decisions based on clinical experience or theories with limited empirical support, to the work of specialised multi-disciplinary forensic evaluation teams that have a wide selection of empirically validated assessment tools and decision-making aids validated on many types of offenders and situation possible, based on a large body of research on reoffending, to guide decisions (Buchanan, 2008). This reformation was brought about by the scrutiny the whole forensic assessment field was subjected to in the second half of the last century as a result of, and in line with, the larger changes in society. The zeitgeist moved toward stressing civil rights and challenging authority. This also brought about change in methods and the underlying assumptions and philosophy of clinical work with mentally disordered offenders, which has had a profound impact both on how clients are treated, how policy and law is written, how decisions are made by management in hospital and correctional settings, and how politicians set their agenda. These changes naturally reflect a changing society here in the West, where, in the 1960’s and 70’s values moved towards strengthening the rights of the individual, only to again move back the victim and public need for protection aspect into focus in public opinion, policy and law, taking part of the research and clinical fields with it. These policy changes have pushed clinicians to develop a clinical and scientific specialty in the field of forensic risk management, so that today there is a professional community that service the courts, mental health and correctional agencies, and produce a body of research, methodological developments and clinical tools that had an impact on the field of risk assessment and management.

The development of structured and empirically validated working methods to be used by clinicians in forensic settings is usually described as having taken place over two paradigm shifts. The first one followed two large-scale natural experiments in the U.S. in the 1960’s and 70’s, where follow-up studies on violent recidivism in two large patient groups, released after court rulings that there was no scientific evidence that clinicians could assess “dangerousness”, showed that clinicians were right in their
predictions of which patients would recidivate less than fifty percent of the time. Almost 1,500 patients, whom clinicians had assessed as dangerous and likely to recidivate, were released or moved to lower security institutions following the rulings of the U.S. Supreme Court in the cases of Baxtrom versus Herold in 1966 (Steadman & Cocozza, 1974) and Dixon versus Attorney General of the Commonwealth of Pennsylvania (Thornberry & Jacoby, 1979). The follow-up showed that the recidivism rate in this “high-risk” group was about 20 percent on the whole, and that the rate of violent reoffending in the group was even lower than that.

Psychologists and psychiatrists as expert witnesses were challenged in the courtrooms on the basis that clinical assessment was less accurate, and therefore less useful, than coin tossing (Ennis & Litwack, 1974). Follow-up studies by among others John Monahan (1984; 1996) summarised these findings and put the final nail in the coffin of unstructured clinical risk assessment, while at the same time pointing the way forward, outlining what he called second generation theory and policy, where focus of risk decision making should be structured assessment of factors that can be reliably assessed and that have been shown to be valid predictors of reoffending. These influential papers can be said to have given birth to a new research paradigm focused on systematically identifying factors associated with reoffending. The aim was to create structured methods of risk assessment to replace unstructured clinical judgement that had been gunned down by the recidivism studies described above. The development has gone in two main directions, in the following exemplified by the work of two influential research groups that set the agenda for much of the risk assessment field in the 1990’s: the Penetanguishene-group and the group at Simon Fraser University, both in Canada.

1.1.1 Actuarial risk assessment
The Penetanguishene group developed a risk assessment system modelled on the mathematical risk estimation methodology used in the insurance business to assess risk level in order to set the cost of an insurance premium, leading to their school of risk assessment to be called actuarial risk assessment. The group developed prediction algorithms based on retrospective studies of released patients, developing risk assessment instruments such as the Violence Risk Appraisal Guide, VRAG (Harris, Rice & Quinney, 1993). The basic idea of actuarial assessment and decision making is that the most accurate way to assess future risk is to remove clinical opinion from the process. Instead, individual offenders undergoing risk assessment are compared over a number of factors to a group of previously released offenders where the correlation between these factors and reoffending is known. The risk message is given as a probability of reoffending within a given period of time after release, where the offender’s numerical risk factor score is compared to that of the studied offender population, and risk of reoffending set at the same rate as the actual reoffending rate of those in the study group with the same risk factor score.

Following the format of the VRAG, other actuarial risk assessment tools have been developed that focus on specific crime types, such as the Static 99 (Hanson & Thornton, 2000) and the SORAG (Quinney, 2008) that focus on sexual offenders, and
the ODARA (Hilton et al., 2004) and DVRAG (Hilton et al. 2008) that focus on spousal assault, to name a few.

The criticism of risk assessment methods typically fall into one of two categories: predictive accuracy and ethical practice issues. Whereas the arguments that sunk unstructured clinical judgments concerned the lack of accuracy of predictions, there was of course also important critique of the practice from an ethics and legal rights issues-aspect that focused on the lack of transparency in assessment and arbitrary treatment of offenders. With actuarial assessment, where transparency was a primary motivation for the actuarial format, and estimates of prediction accuracy are given with each risk communication, the criticism has until recently focused on ethical issues, mainly that the method is theoretical and insensitive to factors specific to the individual case. The focus of assessments was exclusively on factors that have been found to be statistically significant in calibration samples. Important decisions that at one end of the scale will be about choosing between life imprisonment and the death penalty could therefore be influenced by an assessment lacking in comprehensiveness and not allowing for inclusion of atypical or significant risk and protective factors in the risk analysis.

From a risk management point of view, and maybe even more importantly for clinical work with forensic clients, actuarial assessment is of limited use as it does not give the type of information needed to develop risk management plans, as the risk factors included in the actuarial assessment are static factors, such as age at first offence and criminal history, that cannot be affected by any treatment intervention. Another line of criticism that falls into the second group questions the validity of actuarial risk assessment on the grounds that it is impossible to predict the future, not least when it comes to complex events such as human behaviour (Hart, Michie, & Cooke, 2007). To give the impression of being able to do so by giving risk statements in the form of probability percentiles is to take basic research into the association between risk factors and antisocial behaviour on group level, and stretching what is basically a probability quota for a population, much too far. To forensic clinicians, the limitations of all risk assessment methods are obvious, and the value of actuarial methods put in perspective of these limitations, but in the hands of the courts, who typically have little or no formal training in the subject matter (Grann & Pallvik, 2002), actuarial risk messages may easily be taken to be a score from a standardised test, such as an alcometer test, where the result of the test is more appropriately communicated numerically.

There is also the problem that it is in the nature of actuarial methods to be highly sensitive to how closely the individual being assessed matches the calibration sample, that is, the group of offenders the algorithm was built on. There needs to be a close fit not only in the commonly studied offender-characteristics categories, such as socio-economic, psychiatric and offence-history factors to expect the assessment to have a modest to moderate predictive power, but also in other dimensions, such as at what point in the judicial process the offender is being assessed (Urbaniok et al., 2007). Only a handful of actuarial methods are commonly used in clinical practice today, meaning
that we cannot expect to have this kind of detailed fit, and that the accuracy of the assessments may be affected as a result. If predictive algorithms are to be used in accordance with the internal logic of actuarial assessment, there may be a need to develop many more highly specialized prediction algorithms, following research into what aspects influence the predictive power of the algorithms other than those factors commonly assessed today.

Stepping outside the box of criticism, that is pointing to possible development of actuarial assessment, instead challenging the statistical assumption underlying the use of actuarial risk assessment for re-offending, is the argument put forward by Hart, Michie and Cook (2007) that the margin of error when drawing conclusions about an individual patient by comparing him or her to the offender population as a whole, will become so wide in the translation from group data to individual risk message as to render it meaningless. This argument makes the problem of calibration sample-clinical group fit even more serious for actuarial assessment methods.

1.1.2 Structured clinical assessment
The Simon Fraser group has developed checklists to guide clinical assessment of risk, based on reviews of research into what factors are associated with increased risk of reoffending, but also on clinical practice and guidelines. The checklists are crime-specific, and risk factors for general violence (HCR-20, Webster et al. 1997), spousal assault (SARA, Kropp et al., 1994, 1995), sexual violence (SVR-20, Boer et al., 1997, RSVP, Hart, Kropp & Laws, 2003) summarized into checklists. There are also checklists of risk factors of relevance for assessing in children and young violent and sexual offenders, such as the EARL (Augimeri et al., 1998), ERASOR (Worling & Curwen, 2001) and SAVRY (Borum, Bartel, & Forth, 2003).

This type of risk assessment aid is usually made up of static and dynamic factors, weighed together to make up a relatively more comprehensive inventory of risk- and protective factors relevant in the individual case than is the case in actuarial assessment. The clinical factors make up half of the HCR-20, for example, and the manual of SVR-20 reminds the clinician to include case-specific factors of relevance in the assessment other than those outlined in the manual.

The underlying assumption in these structured professional guidelines for risk assessment is that by systematically evaluating the role of known risk factors, but also including into the analysis factors unique to the client in question, the clinician will have a solid basis for making case management recommendations in the areas of risk monitoring, treatment, supervision and victim safety planning (Carroll, 2007). The methodology has evolved from checklists of factors to include in risk assessment procedures, where they were often in a quasi-actuarial manner, simply basing the risk estimate on number and severity of risk factors present. This was done when clinicians and researchers, who had experience from using the checklists in research settings set numerical values for presence of risk factors and added up them up in the same manner as when doing a group study of predictive power of risk factors. They would then,
based on the optimal cut-off value from group studies, set a general risk level for a client, typically unconnected to any time frame or situation, thereby in effect assuming that risk for violence is a constant factor or personality trait. Typically, the risk message was given in text form, with a client being labelled as posing a “high”, “medium” or “low” risk for criminal recidivism.

One recent assessment manual, the Risk of Sexual Violence Protocol (RSVP) (Hart et al., 2003) addresses the problem of quasi-actuarial use of structured professional guidelines by providing the clinician with an assessment framework that specifies the steps in analyses that need to be taken to use the method correctly, that is, without overstretching it and giving the illusion of it being scientifically verified test of “dangerousness”. The manual specifies that the risk message is given as a comprehensive written risk statement, detailing the risk and protective factors present, how they are connected to the clients’ antisocial behaviour, and what elements can be included in a risk management strategy to meet these risks. An overall assessment of case prioritization is to be made, meaning that recommendations should include level and type of intervention needed in the individual case, as well as other important considerations, such as what events should trigger re-assessment.

The main arguments against structured clinical assessment have been of the second type discussed above, that the inclusion of dynamic, clinical factors decreases the accuracy of risk predictions. By encouraging clinicians to include case-specific factors into the risk analysis, “allowing” clinical override, and communicating about risk in descriptive text form (Hilton et al, 2008) we are in essence bringing back some of the most negative aspects of unstructured clinical assessment.

The relative merits of the commonly used risk assessment methods in use today is described in a meta-analysis by Campbell, French and Gendreau (2009). They found no significant differences in mean effect sizes between ARAIs and SCJs, but a slight advantage in predicting institutional violence for ARAIs and static factors, and that SCJ and dynamic risk factors somewhat more suited for predicting violent recidivism. This supports the clinical practice of using ARAI methods in situations that demand rapid classification of individuals of whom we have limited knowledge, such as psychiatric emergency ward intake assessment, and using SCJs to support treatment planning and parole decision making where the clinician typically has more time and information for the assessment. More specialised methods for risk assessment are being developed and implemented in response to the specific needs of different organisations and clinical settings, and the relative merits of ARAIs and SCJs are utilised to match these needs. Two concrete examples of newer developments are the Broset violence risk scale, BVC (Almvik & Woods, 2003) where ARAI principles are used for short-term predict onward violence in psychiatry and on geriatric wards, and the Violence risk scale (Wong, Gordon & Gu, 2007) where the basic principle of SCJ is developed into a comprehensive method for setting up, implementing and evaluating treatment plans for violent offenders.
1.2 RISK AND PROTECTIVE FACTORS IN RELATION TO VIOLENT OFFENDING

The risk and protective factors that have been studied in the context of developing risk management strategies, actuarial, checklist and guidelines formats alike, can be described as representing four aspects of the clients' lives. The first group of factors are dispositional, and include demographic variables such as gender, age and social group, and individual factors, such as temperament factors and different forms of brain damage and functional brain abnormality. The second group of factors are historical, such as previous criminality, age at time of the first registered offence or substance use debut, and type of family climate or parental style. The third group of factors are contextual, such as social network, housing and type of neighbourhood, and life events. Clinical factors, the factors that are the focus of this thesis, are the fourth type of factor often studied, and include psychiatric symptoms and constellations of symptoms, PD and substance abuse and dependence.

1.2.1 The role of clinical factors in violent recidivism

Clinical factors are an important focus in the study of recidivism as they often are construed as causal in the offending behaviour of individuals suffering from psychiatric illness, thus motivating differential treatment of mentally ill offenders in the judicial system in many countries. A large body of research has found evidence for clinical factors as potential risk and protective factors for violent behaviour, which will to some extent be explored in the following, but there is by no means sufficient evidence to base differential treatment of mentally ill offenders on, by for example having separate systems for sentencing and parole. (Differential treatment on humanitarian grounds, where offenders are judged to be not guilty if the crime is seen as motivated by symptoms of mental illness is the flip side of the coin, of course.)

Clinical factors are dynamic (Douglas & Skees, 2005), which make them highly interesting not only from a risk assessment perspective, but also from a clinical management or treatment point of view. The other type of risk and protective factors that can be changed are the contextual, and are typically the focus of social services, probation agencies and psychiatric outpatient services. There is a large body of research and theory in this area and this type of factor is often included in studies of clinical factors and risk, not least because one wants to control for the impact of these on clinical factors. Contextual factors will not be discussed further in this thesis. The other two types of risk and protective factors, dispositional and historical, are included in most risk assessment procedures (Hanson, 2009). These factors are of a static nature and not treatable (such as age at first offence, gender, age) or an expression of basic temperament or neurological dysfunction (such as impulsiveness, severe PD), and are very difficult to affect with the therapeutic methods we have today (Wong, Gordon & Gu, 2007). They are naturally important to include in the basic assessment of an offender when drawing up a risk management strategy, but do not point to components in a treatment plan and are not meaningful to include in dynamic risk monitoring and management. Thus follows that clinical and contextual factors should be the focus of research into risk management methods, as those identified as risk factors can be
changed by treatment and other interventions, and those identified as protective factors can be strengthened to increase an offender’s motivation and ability to choose not to reoffend.

1.2.2 Previous studies on clinical factors and offending

Researchers have investigated the relationship between psychiatric illness and violence using many different designs (Mitchell, 1999). Some studies investigate the prevalence of violent offending among people diagnosed with a mental disorder, others the prevalence of mental disorder in offender populations. There are studies of small clinical samples, birth cohort studies and epidemiological population studies. There are studies of different subtypes of mental illness and psychiatric symptoms, and there are many different ways to define and study violence. Researchers control for contextual, historical and dispositional factors in different ways when investigating the possible link between psychiatric illness and violence. In light of this, it is not surprising that the research field is difficult to overview, and that there are often conflicting results when researchers study the same clinical factor. Another reason behind this is that there is a basic problem in many studies of mental illness and violence, in that they often study clinical populations, making it difficult to say anything about the true cause and effect relationship between mental illness and violence (Kramer & Lane, 1992). In the following, findings from large, prospective epidemiological studies, as well as retrospective and smaller clinical studies will be reviewed organized by type of disorder.

1.2.2.1 Major mental disorder

Psychosis or major mental disorder (MMD) is the mental illness that is most debilitating insofar as it affects the individual more severely and in more aspects of functioning than other forms of mental disorders. MMD is also most often scientifically studied in relation to violent offending. In most legal systems MMD is considered as grounds for diminished responsibility and hence, most commonly leads to an offender being routed through the forensic psychiatric rather than the correctional system. The evidence of a link between MMD and violence was evaluated in a meta-study comprising 166 unique data sets by Douglas, Guy and Hart (2009), where the median of the effect sizes indicated that psychosis was significantly associated with a 49 to 68 percent increase in the odds ratio (OR), or risk for violence. In their article, they tried to describe the complexities in study design and control of confounders that may underlie the large differences in effect size in different studies. In a more recent and more comprehensive meta-analysis, Fazel and colleagues (2009) identified 20 individual studies reporting data from 18,423 individuals with schizophrenia and other psychoses. In men, ORs for the comparison of violence in those with schizophrenia and other psychoses with those without mental disorders varied from 1 to 7. In women, ORs ranged from 4 to 29 with substantial heterogeneity. The effect of co-morbid substance abuse was marked, with the random-effects ORs of 2.1 (95% confidence interval: 1.7–2.7) without co-morbidity, and an OR of 8.9 (95% confidence interval: 5.4–14.7) with co-morbidity.
When studying the mechanisms of violence and MMD interaction, there is of course no limit to the number of creative designs that could be used, but the question of an epidemiological relationship between MMD and violent offending can basically be approached from two sides (Douglas, Guy & Hart, 2009; Hodgins, 1998). One can study the offences (how many offences are committed by persons diagnosed with MMD?) or one can study offenders (is it more common for violent offenders to suffer from MMD than people in the general population?). By identifying the proportion of violent offences committed by persons suffering from MMD, one can see the relative importance of MMD as a risk factor for violence. Taking the second approach, comparing the prevalence of MMD in the general population with the prevalence among violent offenders, a relative risk or OR for MMD can be calculated, telling us if meeting the criteria for MMD is associated with an increased likelihood of violent offending or not.

Several population studies have used the first approach, showing an increased rate of violent crime in the subpopulation with MMD (Bremner, Mednick, & Hodgins, 2000; Binder, 1999; Arboleda-Florez, 1998; Lindqvist & Allebeck, 1999), even more so in conjunction with substance abuse and dependence (Tihonen et al., 1997). Two more recent population-studies by Fazel and Grann (Grann & Fazel, 2004; Fazel & Grann, 2006) addressed this question using the second approach, investigating how many violent crimes are attributable to offenders with MMD in the national registers in Sweden concerning hospitalization and crime respectively. These studies were of a methodological high standard, as all individuals in Sweden are given personal identification numbers that are used in all contacts with health care services and in government registers. By comparing data from the hospitalization register for all individuals whom were discharged with a diagnosis of schizophrenia or other psychosis with the crime register, they were able to study the population attributable risk of patients with MMD to violent crime. The studies included almost 100,000 patients and the follow-up time was thirteen years, and concluded that individuals with a MMD diagnosis committed about five percent of all violent offences registered during this time. There were large differences in offence proportion attributable to individuals with MMD over different offence type, gender and age, with lower proportions of offences attributable to offenders with MMD among young people, a higher proportion among females, and in types of offences commonly associated with mental illness, such as arson and murder. Another study using material from Swedish registers (Lindqvist & Allebeck, 1999) that took gender into account was a follow-up in the national Swedish crime register of all patients discharged from Stockholm hospitals during one year with the diagnosis schizophrenia (n = 644), showing that the male patients had been registered as having committed as many offences as the whole of the population, whereas the women in the patient group had been registered as having committed twice as many offences as the whole population. When looking at violent crime, they noted that individuals with schizophrenia were responsible for four times as many offences. The large difference between men and women in the association between schizophrenia and violence is also investigated by Taylor and Bragado-Jimenez (2009).
It is important to look at MMD independently of PD, as some diagnoses have been shown to have a strong association to crime generally, and violent crime specifically (Edens, 2009). Psychopathy, as defined in Robert Hare’s Psychopathy Checklist PCL-R (Hare, 1991), is one of the most robust predictive factors for general and violent reoffending, and it has been shown that the increased rate of offending in patients with MMD can be explained by pre-morbid psychopathic personality disorder (PPD) (psychopathy debuting before MMD) (Tengström et al., 2000; Rice & Harris, 1995; Skeen et al., 2005). The same is true of substance abuse and dependence and certain social-demographic factors. This has been addressed in a study by Brennan, Mednick and Hodgins (2000; also in Hodgins et al., 1996) where MMD was shown to increase risk independently of PD in a register based study of a Danish birth cohort. Being diagnosed with MMD increased the probability of having been arrested following a violent offence by between about 2 and 9 times for men, and 4 and 23 times for women.

Other studies contradict that MMD independently increases the risk of violent offending, and alternate explanations of the increased crime rate in MMD patients have been put forward. For example, Steadman and colleagues (1998) found no difference in violent offending among discharged psychiatric patients and their neighbours in the McArthur study when controlling for substance use. Instead it was presence of substance use that increased the likelihood of violence in both groups. This was investigated in a large epidemiological study of nearly 35,000 people in the community by Elbogen and Johnson (2009). In this study, MMD and substance use predicted violence, even more so than for substance use only, but MMD on its own did not. In a meta-analysis, Bonta, Law and Hanson (1998) found that it was the same factors that predicted violent reoffending among individuals with MMD as in the offender population as a whole. The re-offending rate among offenders with MMD has been shown to be lower than that in other offender groups which, statistically speaking, make the debilitating symptoms of psychosis work as a protective factor (Mitchell, 1999; Wallace, Mullen, Burgess, Palmer, Ruschena, & Browne, 1998; Quinsey, Harris, Rice and Cormier, 2006).

Studies of specific symptoms of psychosis aim towards finding causes of violence, whereas the general MMD studies are more geared towards general risk ratios. Delusions is one of the specific symptoms of psychosis that has been studied extensively in relation to violence, and many studies have been able to show an increased risk of violent behaviour in patients suffering from delusions. Nestor and colleagues (1995) compared two groups of forensic psychiatric patients (n=46) and found that the group that had committed serious violent offences more often had delusions than those who had mainly committed non-violent offences. The delusions were often connected to the victims of the violence and it was common to experience that an imposter had taken the place of family members. This role of delusion in victim selection was explored in a study by Nordström, Dahlgren and Kullgren (2006) of all homicide offenders in Sweden between 1992 and 2000 with a diagnosis of schizophrenia. Fifty-four percent of the offences were associated to delusions or
hallucinations, 85 percent of victims were family members of the offenders, and among those offenders, 72 percent suffered from delusions or hallucinations, compared to 43 percent of offenders targeting victims outside the family. Junginger, Parks-Levy and McGuire (1998) studied the relation between violence and MMD in a group of 54 patients in a psychiatric clinic, identified by staff as suffering from delusions. They found that 17.5 percent of those patients had committed a serious violent crime that was linked to the delusions. In 40 percent of the cases there was some type of violent offence where it was deemed likely the delusions were connected to the act. Taylor and colleagues (1998) studied the medical records of all patients admitted to a forensic psychiatric hospital (n=1740). In 75 percent of cases where the patient was diagnosed with psychosis, delusions were assessed as being the cause of their violent behaviour. No such connection was seen in cases where patients had hallucinations without delusions. The results of this study must be seen for what they are, though, a small clinical sample that cannot be assumed to be a representative sample of forensic psychiatric patients, with obvious problems in study design. Swanson and colleagues (2008) could see an association between positive symptoms and violence only in the subgroup of offenders that had no history of childhood antisocial behaviour. The connection between delusions and violence in clinical samples has not been shown in epidemiological studies. Appelbaum, Robbins and Monahan (2000) found no such connection between delusions and violence in the MacArthur project (Monahan, 1994), but note in the paper that delusions are clinically important as they may drive violent behaviour in some cases.

Another symptom of psychosis that has been studied is what is called threat and control override hallucination (TCO), which means that the individual experiences being threatened or that something outside of themselves has taken over control of them. These symptoms have been put forward by many researchers as being the factor that explains the increase in violence among patients with MMD (Chan, 2008; Björkly & Havik, 2003; Taylor, 1998; Taylor & Monahan, 1996; Junginger, 1996) and many research groups have shown this in empirical studies (for a review, see Hersch & Borum, 1998; but also Link, Stueve, & Phelan, 1998; Grisson et al., 2000). Again, this has not been confirmed in epidemiological studies (Appelbaum, Robbins, & Monahan, 2000), or all clinical samples (Stompe, Ortwein-Swoboda, & Schanda, 2004), and it has been put forward that what is being tapped when TCO-symptoms were assessed may have been an underlying paranoid and hostile personality orientation (Appelbaum, 2000; Skeem et al., 2006).

Learning disabilities and cognitive dysfunction have been studied in relation to the increased rates of violent offending in MMD (Hodgins, 1992; Krakowski et al, 1997; Krakowski & Czobor, 1997; 1994; Kunz et al., 1995). Krakowski and associates have published a number of studies on the role of psychotic symptoms in violent reoffending from a neuropsychological viewpoint (Krakowski & Czobor, 1997; 1994; Krakowski, Czobor, & Chou, 1999; Krakowski et al., 1997). They have shown that patients with negative symptoms and neuropsychological disorders run a lower risk of violent offending, and even more so of reoffending, something which is in line with the clinical
presentation in these patients. Positive symptoms and lowered frontal lobe functioning were associated with persistent violent behaviour, which also is in line with the clinical presentation, where positive symptoms drive thoughts and behaviour into violent behaviour towards others. Lowered pre-frontal functioning is also associated with the type of impulse control dysfunction seen for example in patients with psychopathic PD, raising the question to what extents this finding is due to pre-morbid PD (Tengström et al., 2000).

In a recent review of research on schizophrenia and violent crime, Taylor (2008) concludes that there is a small but significant violence risk increase associated with schizophrenia, but that the public fear of individuals diagnosed with MMD is largely unfounded, at the same pressing on the need for higher awareness of the fact that crime is often carried out against family members (see also Link et al., 1999; Monahan, 1992; Pescosolido, et al., 1999; Phelan & Link, 1998). Chan (2008) reported that 26 percent of family members caring for a relative diagnosed with schizophrenia were severely assaulted, and 31 percent less severely assaulted during the one month studied, and 44 percent were victims of severe psychological aggression. The importance of pre-morbid PD and co-morbid substance abuse and dependence is as important in this offender group as it is among non-psychotic offenders. The association and effect of these factors were summarized in a Finnish population study (Joyal, Putkonen, Puuvola, & Tiitinen, 2004) showing that the circumstances and triggers for violence differs in the group of offenders diagnosed with MMD only, and those with additional diagnoses of ASPD and SUD. Whereas those with schizophrenia tend to offend against family, acting on delusions or other psychotic symptoms, those with concurrent PD and substance use show offending behaviour more in line with violent crime committed by non-disordered offenders: they are violent under the influence of alcohol or drugs and target victims outside the family with whom they were involved in aggressive confrontation. This is, of course, is a critical aspect to take into account when working with risk assessment and management.

Even more useful for risk management is the study by Skeem and colleagues (2006) outlining a new direction in research into the violent acts committed by individuals diagnosed with mental disorders, pressing the need for longitudinal studies of within-individual effects of symptom types and levels or acuity, thus illuminating the “dynamic interplay between psychiatric state and violence risk state” (Skeem at al., 2006). They point to the fact that the knowledge-base about the role of psychiatric symptoms in triggering violence is still weak, and that there is not enough evidence that violence risk is best reduced by focusing risk management on psychiatric treatment. By doing so, one misses the need for working with the violent behaviour, a treatment focus that would be obvious if it was not for the underlying assumption that it is psychiatric illness that causes violence. McNeil, Eisner and Binder (2003) showed that aggressive attributional style was significantly associated with violent offending even when controlling for demographic, psychiatric and impulsiveness factors, which also stresses the importance of working with the violent behaviour, in this case, cognitive interventions, and not focusing exclusively treating the psychiatric illness, assuming
that violent behaviour will decrease when the symptoms of psychiatric illness diminish. When designing interventions aimed at reducing aggression and violent behaviour, one very important piece of the puzzle is the study by Harmon-Jones and colleagues (2009) showing that aggression is associated with approach motivation, thus, somewhat counter-intuitively, connecting positive affect and aggression, something that can explain the elation and positive force many violent offenders experience when they are violent, and the reoffending patterns often seen in persons who habitually cruise, looking for a fight. It may also explain part of the reinforcing mechanism driving persistent violent offenders, whether suffering from mental illness or not.

1.2.2.2 Instability

Instability is the behavioural and affective impulsivity shown to be a key risk factor in violent behaviour, in psychiatric patients and in individuals with no psychiatric disorder (Webster & Jackson, 1997). In the risk for violence checklist HCR-20 (Webster et al., 1997) this factor is included among the clinical factors, under the heading impulsivity. Impulsivity, affective instability and irritability are important factors in antisocial (APA, 1994) and psychopathic (Hare, 1991) PD. Instability and impulsivity are risk factors that make sense in clinical settings, as they can easily be seen in the day-to-day work with patients and correctional clients in how they relate to staff and other people on the ward, and are therefore useful risk-markers for violence in the short-term (Almvik & Woods, 2003). Kaliski and Zabov (1995) studied the role of impulsivity in violent behaviour among patients with schizophrenia. They found that level of impulsivity did not differ significantly between those who had committed violent and non-violent crime respectively, but that other factors such as persecutory delusions better explained violence. This, though, was only true in the patient group that was not repetitively violent, which ties in with the results of the study by Tengström and colleagues (2000) where pre-morbid PPD predicted reoffending in forensic patients with MMD, impulsivity being a core problem in PPD. There may be a difference in the role of instability in long-term and short-term risk for violence, though. McDermott and colleagues (2008) and Morrissey and colleagues (2007) showed that the PCL-R as a whole did not predict inpatient violence, and that the clinical and risk management items of the HCR-20, including impulsivity and aggression, better predicted institutional violence. This points to the importance in risk management of differentiating between factors that are strongly associated with life-time risk of violence, such as PD, and risk factors that are markers of imminent violence, such as levels of instability and hostility (Wang & Diamond, 1999).

1.2.2.3 Insight and treatment motivation

Insight, or lack thereof, in patients diagnosed with psychiatric illness or PD is a variable that has no agreed operationalisation in research or clinical literature. Many definitions focus on one or more of three factors: knowing that you suffer from an illness, knowing that you need treatment, and knowing that the symptoms you are experiencing are due to the disorder (David et al., 1992). Not much research has been done on the role of lack of insight on risk of violence. It is often the treatment motivation or compliance aspect of insight that has been studied, where one common hypothesis in clinical work
is that lack of insight causes the patient to refuse treatment, thus becoming more ill, which can than increase the risk of violent behaviour (for a review, see Swartz et al., 1998), again assuming a causal link between psychiatric illness and violence. It is an important factor to take into account, though as it is common among patients diagnosed with MMD to lack insight into their condition (Amador, et al., 1994), thus making them more likely to act out on hallucinations. In clinical work with schizophrenia, it is a common focus to teach patients to recognise positive symptoms and respond to them in a more constructive way. Some studies have pointed to a link between insight and violence among patients with MMD (Torrey, 1998; Arrango, et al., 1998) whereas others have found no such link (Waldhefer et al., 2005; Swartz et al., 1998; Yen et al., 2002). It remains though, that lack of insight and treatment motivation are two of the factors clinicians most often consider in risk assessment (Sturidsson et al., 2004). There is evidence that among patients with MMD, refusal to take medication is one of the most robust risk markers for violent reoffending in forensic psychiatric patients (Swartz et al., 1998; for a review, see Torrey, 1994). Refusal to take medication is also associated with higher re-admittance rates due to violent behaviour, longer jail sentences, and more severe offending in discharged forensic psychiatric patients (Smith, 1989), and to homicidality (Schwartz, 2008).

Among clinicians working in forensic psychiatric settings, it is a commonly held belief that stopping medication and starting drug-taking or drinking alcohol is a pathway to reoffending (Sturidsson et al., 2004). This was confirmed in a study of forensic psychiatric patients discharged into the community (Swartz et al., 1998), where stopping taking medication and relapsing into substance use almost always occurred together, and was a significant predictor of violent reoffending. Even so, the importance of taking medication and abstaining from drug and alcohol use can be overemphasized by clinicians when doing unstructured clinical risk assessment. This was seen in a study by Mulvey and Lidz (1998) that investigated what factors clinicians described as possible future triggers of violence in patients seen at a psychiatric emergency clinic. In over 600 patient records, substance use and not taking medication were the most common risk factors mentioned, but at follow up of violent reoffending showed that these factors were much less important than clinicians believed.

1.2.2.4 Mood disorders and suicidality
Among the mood disorders, the manic phase of bipolar disorder or manic episodes is a more obvious research candidate in relation to general and violent offending (Schwartz, 2008) than symptoms of depression, that could be hypothesized as having a negative association with violence, due to the pacifying effects of the disorder (Carver, Johnson, & Joormann, 2008). Of the individuals charged with serious crime that undergo forensic psychiatric evaluation in Sweden, only about two percent are diagnosed with depression (Rättsmedicinalverket, 2000), but an association between depression and violence was seen in the large Epidemiological Catchment Area-study (Robins & Regier, 1991). They reported a relative risk that was five to six times higher for individuals with depression and bipolar diagnoses compared to individuals with no psychiatric diagnosis (Swanson et al., 1990). Contrary to this, Stueve and Link (1997)
found a negative association between depression and self-reported violence in their study of a non-psychiatric sample.

Even though patients with a primary diagnosis of depression are few in forensic psychiatry, there are subgroups of depressed patients that are violent under certain conditions, and there is evidence of a close connection between impulsivity and aggression on the one hand, and depression on the other, due to the same serotonergic pathways being involved (Carver, Johnson & Joormann, 2008). This connection was seen in a study by Knox and colleagues (2000) who found a high prevalence of aggressive behaviour in teenagers suffering from depression. Olsson (1998a) showed that conduct disorder is more common in teenagers with depression, with 24 percent of depressed teenagers meeting the criteria, compared to four percent in the non-depressed group. Teenagers with depression were also more likely to abuse alcohol or drugs, which contributed to a negative development, socially and psychiatrically (Olsson, 1998b).

There is research support for a positive correlation between violence towards others and self-harm and suicide (Convit et al., 1988; Menzies, Webster, & Sepejak, 1985). The link between suicide and violence towards others is especially strong for the group of men who are violent towards partners (Goldsmith, 1990; Saunders, 1992; Stuart & Campbell, 1989). In a study by Apter and colleagues (1991), a forensic psychiatric patient group with a history of violent offending were compared to a general psychiatric sample where there were no patients sentenced for violent offences, on suicide risk. They found that in the forensic group, the association between affective disorders and self-reported depression to suicide risk was significantly lower than in the non-violent group. This has implications for risk assessment practice as it may be different mechanisms that drive violent behaviour and suicide in forensic and general psychiatric populations.

Another example of depression as a trigger for violence is extended suicide or so called murder-suicide, where a single individual kill, often family members or former work colleagues or co-students, and then attempts or completes suicide. A meta-analysis of epidemiological studies on extended suicide (Marzuk, Tardiff, & Hirsch, 1992) reported 1000 to 1500 deaths per year in the United States. Depression diagnosis and previous suicide attempts were common in the offender group, especially so when the offender was a woman whose victims were her own children. Three offender types were identified: young men acting on sexual jealousy, depressed mothers with young children, and older men caring for a close relative. Malphurs and Cohen (2005) showed depression and either marital conflict or caring for a spouse with serious illness as significant predictors of murder-suicide in men over 55, with a resulting mortality rate comparable to that of influenza.

A third area where depression has been linked to violence is what is called police assisted suicide, or suicide by cop, where an individual tries to provoke police to use lethal violence by acting violently or threatening (for a review of the phenomena, see
Mohandie & Meloy, 2000; and for prevalence figures also Mohandie, Meloy, & Collins, 2009; Hillbrand, 2001).

When it comes to other affective disorders, it has been shown, somewhat counter-intuitively, that individuals diagnosed with affective psychosis commit more violent offences than the population as a whole, but fewer than individuals diagnosed with other types of psychosis. Brennan, Mednick and Hodgins (2000) reported an increase in arrest rates following violent crime for people with affective psychosis in a Danish birth cohort study. This increase was much lower than what is seen in all other types of psychosis. Another result that points to a different relation to violent behaviour in affective psychosis is a study by Hodgins, Lapalme and Toupin from 1999. In this study, as in many others, co-morbid ASPD was found to drastically increase the likelihood that a patient with a primary diagnosis of MMD had committed a violent crime, but for patients with a diagnosis of affective psychosis, this interaction effect was not as strong.

1.2.2.5 Anxiety

There are few studies on the role of anxiety disorders and violence in forensic and other populations. One hypothesis is that anxiety, a stressor for any individual, could increase the risk of violent behaviour as it pushes the person to try and reduce the tension and alleviate symptoms. For instance, this could play a great part in sexual violence and a subgroup of arsonist, and is also true in post-traumatic stress disorder (PTSD), where impulsive and destructive behaviour is a key feature. PTSD has been linked to partner violence and violence towards family members (Babcock et al., 2008) and may be the engine driving the so called cycle of violence (Lisak & Beszterczey, 2007). Anxiety diagnosis is strongly associated with alcohol and substance abuse and dependence (APA, 1994), which in turn is a key risk factor for violent behaviour.

In patients with anxiety disorders, there is an increased rate of violence towards others and self-harm and suicide, with co-morbid depression and impulsiveness (Korn, Plutchik, & van Praag, 1997; Apter, Plutchik, & van Praag, 1993). For a majority of anxiety patients, though, the symptoms of the disorder are limiting, insofar that both activities and life-space are reduced, thereby limiting the possible risk situations for violence towards others. This is shown in a study of a non-psychiatric sample by Stueve and Link (1997), and has also been described by Apter, Plutchik and van Praag (1993), who found that chronic anxiety disorder, as manifested in the DSM-IV (APA, 1994) cluster C PD, was negatively correlated to violent behaviour. In a study of homicidality in inpatients diagnosed with anxiety disorder, it was not features of the disorder itself that predicted homicidality, but largely the same factors that predict in any population, i.e. male gender, substance abuse, mania, and history of antisocial behaviour (Schwartz, Wendling, & Guthrie, 2005).

1.2.2.6 Homicidal thoughts

Violent thoughts or aggressive rumination has been shown to be associated with an increased violence risk in some cases. Grisso and colleagues (2000) reported that violent thoughts predicted violent behaviour within twenty weeks of discharge in some
patient groups. The risk increase was highest in the patient subgroup with psychopathic personality traits and high anger and impulsivity scores, as in the group with the most severe symptoms of psychosis. This was not seen in an inpatient sample (Schwartz, Petersen & Skaggs, 2001) where presence of severe psychiatric symptoms and homicidal thoughts did not predict acting on them.

1.2.2.7 Personality disorder
Psychopathic personality disorder (PPD) has been shown to be a robust predictive factor for general and violent reoffending (for a meta-analysis see Campbell, French, & Gendreau, 2009; Salekin, Rogers, & Sewell, 1996; also Grann et al., 1999), and the risk effect has been shown to be equal in men and women (Putkonen et al., 2003). PPD is not featured in either of the two most commonly used diagnostic systems, DSM (APA, 1994) or ICD (WHO, 1994) in Europe and the U.S., where instead the more inclusive PDs called antisocial or dissocial, respectively, are used. There has been a consensus in the forensic clinical community that PPD is best diagnosed using Robert Hare’s conceptualization of the disorder, as outlined in his psychopathy checklist (Hare et al., 1990; Hart, Cox & Hare, 1995), and most of the research done on PPD use this operationalisation.

Co-morbid PPD increases risk of violence in all DSM-IV axis I disorders (for a review of findings, see Binder, 1999 and Torrey, 1994). This increase has in some studies been shown to be dramatic. Fulwiler and Ruthazer (1999) showed that conduct disorder in childhood, the diagnostic fore-runner of adult antisocial or psychopathic PD, increased the risk of violent behaviour ten times in individuals with a primary axis I diagnosis. In studies of the relationship between axis I disorders and violence, where PDs have been taken into account, PPD and ASPD have been shown to have a higher explanatory value than the axis I disorders in and of themselves, empirically and theoretically (Tengström et al., 2000; 2004; Hodgins & Coté, 1993).

The CAPP project (Cooke et al., 2004) is a recent development in the field that aims at the core of the disorder by stripping the diagnostic process of secondary indicators of primary PPD, using instead only trait descriptive adjectives in the attachment, behavioural, cognitive, dominance, emotional, and self categories to operationalise PPD. If and when this diagnostic tool is implemented widely in forensic practice, replacing the PCL-R operationalisation of PPD (Hare et al., 1980), research on the connection between PPD and violence will need to be updated in all clinical areas, not least psychosis, and may give a clearer picture of the relationship between psychiatric illness and pre-morbid PD and antisocial behaviour on the one hand, and violent behaviour on the other.

1.2.2.8 Substance use
Alcohol and drug use and dependence is (ADUD), on its own and together with refusal to take medication and psychopathic personality traits are commonly studies factors in studies of forensic psychiatric patients and violent recidivism. It is also one of the factors clinicians see as most important to consider in risk assessment (Sturidsson et al.,
 Substance dependence has been shown to be present in as large a proportion as 80 percent of offenders diagnosed with schizophrenia (White, Chant & Whiteford, 2006). ADUD is in itself an independent risk marker and acute trigger for violent behaviour (for a review, see Poldruo, 1998), and alcohol use is often described as a moderating factor that potentiates other risk factors for violence (Zhang, Wieczorek, & Welte, 1997), having been shown to double the risk of crime in this patient group (Modestin & Wurmle, 2005).

Three large epidemiological studies of psychiatric illness and violence in recent years have studied substance abuse. In the Epidemiological Catchment Area study (ECA, Swanson, in Monahan, 1994), substance abuse had a much higher risk effect than psychiatric illness. Steadman and colleagues (1998) saw the same results in their follow-up of discharged psychiatric patients, when there was no difference in violence rates between the former patients and their neighbours. Instead, substance abuse increased the likelihood of violence in both groups. Tiithonen’s study of a Finish birth cohort (Tiithonen et al., 1997) investigated criminality among psychiatric patients. Over 12 000 persons were followed prospectively over 26 years and the results show an increased risk for violent crime, but not general crime, in the group with co-morbid substance abuse and MMD.

Psychopathic personality traits and substance abuse have been shown to be associated with a larger risk increase than MMD, both when only one of them is present, together, and in combination with other DSM (APA, 1994) axis I disorders. This was true in the MacArthur study (Monahan, 1994), where it was substance abuse that increased violence in both the psychiatric and non-psychiatric group. Swanson and colleagues (2008) saw an association between substance use below the levels of diagnostic criteria and violence among offenders diagnosed with schizophrenia, but only in the subgroup that showed antisocial behaviour in childhood and adolescence. In the non-antisocial group, acute symptoms of psychosis had a stronger association with violence.

1.2.3 Summary of previous research on clinical factors as risk factors for violent behaviour

- The relationship between some clinical factors and violence has been thoroughly investigated and reported on in the literature, such as for MMD and substance abuse, whereas other clinical factors are still under-researched.
- Previous studies have largely focused on single symptoms or a small group of symptoms, which means that there is lack of knowledge about how the clinical picture as a whole relates to violence.
- Previous studies have mainly focused on clinical factors as risk factors, and there are few studies on clinical factors that are associated with a decrease in violence.
- There are few studies of psychiatric illness and forensic clients.

The role of clinical factors in forensic risk management is therefore largely unexamined.
2 AIM

The aim of the present thesis was to investigate the relationship between clinical factors and violent re-offending among forensic clients. Among clinical factors of particular interest were psychiatric symptoms and personality disorders, treatment motivation and other treatment components. Clinical factors were investigated along the following dimensions:

- Critical factors: Were there factors that are required or sufficient for triggering violent recidivism? Were there protective factors that reduced risk?
- Critical constellations: were there constellations of clinical factors that interacted with each other to increase risk of violent recidivism? Were there protective constellations?
- The role of mediators and confounders: were there dispositional, contextual or historical factors that modified the risk effect of clinical factors?

The specific aims of the five papers included in the thesis were:

- to assess the value of using personality disorder screening self-assessment instruments in assessment to inform risk management strategy, in this paper the DIP-Q (Ottosson et al., 1995) (paper I)
- to develop a method for structured risk monitoring and management; SORM (paper III)
- to investigate the role of clinical factors in risk management (papers II, IV and V)
- to validate the method the method of risk monitoring and management; SORM (papers IV and V)
3 METHOD

3.1 THE DATA SETS
Data from three projects have been used in the papers included in this thesis: the COMET project (papers III-V), After Care project (paper II) and TreBe project (paper I).

3.1.1 COMET
The COMET-project, contextual factors that mediate risk, was a multi-centre study with the aim of testing a structured model for risk management, treatment and outcome evaluation in forensic psychiatric and prison and probation settings. The model was tested in a prospective follow-up data collection in discharged forensic psychiatric patients, and in a retrospective study of rapidly recidivating offenders referred for forensic psychiatric evaluation after they had been in the community less than two years. Data was collected in the project between 2000 and 2004.

The risk management model that was tested is called SORM, structured outcome assessment and community risk monitoring (the rating protocol is shown in figure 1). It is a framework for keeping track of potential risk and protective factors that have been shown to be associated with violence in previous studies, or that have been identified as important to track in clinical practice. It is also designed to be used as a systematic treatment evaluation tool, but this application will not be discussed in this thesis as it is not the focus of any of the studies.

The development of the SORM checklist is described in paper III (Grann et al., 2005). The factors included are divided into four areas. The first one, current services, tracks interventions to support or monitor the individual, and interventions within the penal system, such as mental and physical health care contacts, contacts with probation officers, social services, in- and outpatient treatment programs. The second, social situation, tracks such factors as housing, work and level of functioning. The third, social network, focuses on non-professional relationships. The fourth group, clinical factors, tracks symptoms of psychiatric illness and related factors, such as medication, substance use and treatment motivation. The fifth type of factor is self-assessment of health, quality of life and risk of violence. At every assessment, information on general and violent offending, and situations where the individual came close to committing an offence is noted following a semi-structured interview with the assessee. For the purpose of the COMET 1 and 2 studies described below, information on criminality was also collected from the Swedish national police register.

Each factor included in the SORM is rated on three levels of presence or severity, unless absent or not applicable. If present, a risk effect rating is made by the interviewer, noting if the circumstances are judged to increase, decrease or be unrelated to risk of violent behaviour.
SORM
Structured Outcome Assessment and Community Risk Monitoring

<table>
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<tr>
<th>CODING SHEET</th>
<th>Presence</th>
<th>Risk effect</th>
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**Current services**
1. Detention and correctional treatment
2. Psychiatric institutional treatment
3. Professional support and contacts
4. Physical health care
5. Occupational training and employment services

**Social situation**
6. Lack of housing
7. Economy
8. Work
9. Leisure
10. Daily functioning

**Social network**
11. Family
12. Partner
13. Children
14. Friends

**Clinical factors**
15. Lack of insight
16. Mood symptoms
17. Anxiety symptoms
18. Psychotic symptoms
19. Instability
20. Suicidal ideation and suicide attempts
21. Homicidality
22. Lack of treatment motivation
23. Pharmacological treatment
24. Substance abuse

**Subjective ratings**
25. Health
26. Quality of life
27. Risk of violence

**Criterion variables**
28. Violent acts
29. Other criminal acts
30. Risk situations

*Figure 1: SORM checklist scoring sheet.*
3.1.1.1 The COMET-1 study

COMET 1 was a case-control study of risk and protective factors for violent reoffending. Included in the study were violent offenders discharged from forensic psychiatric care or the prison service who had been in the community less than two years before committing a repeat violent offence. Consecutive cases were approached and asked for informed written consent at the forensic psychiatric evaluation centre at Huddinge hospital (n=42), and at the prison service national reception and assessment centre, located in Kumla high security prison (n=21). Offenders placed at Huddinge were individuals who had been found guilty of a violent crime, and sent for pre-sentencing psychiatric evaluation due to their records indicating a history of mental illness, or due to the offence behaviour being disorganised or indicating mental illness. Offenders assessed as suffering from MMD they are then routed through the forensic psychiatric system, the others through the prison service. The offenders placed at Kumla were newly sentenced violent offenders given a prison term of four years or more, where a risk and needs assessment is carried out. Some of the offenders assessed in Huddinge were later placed at Kumla for intake assessment after having been found to not suffer from MMD, but they were off course only included once in the study. The control group were violent offenders discharged from forensic psychiatric care (n=52) who had not been charged with new offences after two years in the community. Both cases and controls were assessed using the SORM with respect to how their life situation was on the day the case-individual recidivated.

3.1.1.2 The COMET-2 study

COMET 2 was a prospective follow-up of patients (n=86) discharged from Swedish forensic psychiatric hospitals in Piteå, Umeå, Säter, Sala, Stockholm, Karsudden, Vadstena and Jönköping. Following a base-line assessment including DSM-IV diagnostics, PCL-R and HCR-20 ratings, self-reported personality assessment (SSP, Gustavsson, 1997), attachment profile, ASQ, (Tengström & Häkansson, 1996) and blame attribution, BAI, (Gudjonsson, 1984, Gudjonsson & Singh, 1989), the patients were interviewed and assessed using the SORM at 24 monthly follow-ups, or until drop-out or reoffending.

The rationale for doing a retrospective case-control study in parallel with the prospective follow-up was that the monthly interview and the relationship with the interviewer may have impacted the patients’ after-care period, in some cases in a positive way, when the patient feels that someone is rooting for them, in other cases in a negative way, where the patient may feel he or she is under scrutiny. By doing two studies, we hoped to be able to discuss the impact of the follow-up process on the results of COMET 2 in relation to the COMET 1 results.

3.1.2 AFTER CARE

The After Care project was an international multicentre study led by professor Shellagh Hodgins. Forensic psychiatric patients from four regional or national uptake areas in Canada (British Columbia), all of Finland, Germany (Hessen), and Sweden (southern region) were included in the study. A baseline assessment of social, criminal and
psychiatric history, mental disorders, personality traits and childhood and adolescent functioning was performed using a structured protocol created for the project. Assessment for PPD using the PCL-R (Hare, 1991) and risk of reoffending using HCR-20 (Webster et al., 1997) was performed. Information on aggressive behaviour over the lifespan was collected using the protocols from MacArthur project. Psychiatric symptoms were re-assessed six months after discharge. Information on aggressive behaviour was collected from the patient and collaterals. Psychiatric diagnosis was made using the SCID (Spitzer et al., 1992). Psychiatric symptoms were assessed using the Positive and negative symptoms scale, PANSS (Kay, Fiszbein, & Opler, 1987), TCO symptoms using the Psychiatric Epidemiology Instrument (Link & Steuve, 1994), depression using the Hamilton scale, HRSD (Hamilton, 1960).

Following the baseline assessment at discharge, patients were re-interviewed after six months in the community. The follow-up interview covered information on clinical factors, social situation, services and interventions from government agencies and caregivers, and reoffending, and the same information was given by a collateral source, someone close to the patient, and taken from official records. At the second follow-up, six months post-discharge, indexes of symptom level change were calculated. Information on aggressive behaviour was collected from participants and collaterals. Urine and hair samples were taken to control for drug use. Information on aggressive acts was collected at the end of the 12-month follow-up.

Participants were 128 men with a principal diagnosis of schizophrenia (n=106) or schizoaffective disorder (n=22) with a mean age of 39 years. Ninety-one were discharged from forensic psychiatric care, 37 from general psychiatric care. When paper II was written, 128 participants had been assessed at the six-month follow-up and 112 had reached the twelve month follow-up. Sixteen patients had been readmitted during the second follow-up slot, and therefore excluded from analyses.

3.1.3 TREBE

Paper I reports on the TreBe study, led by professor Gunnar Kullgren, university of Umeå, Sweden. It investigates the utility of using a self-report instrument, the DSM-IV and ICD-10 Personality Questionnaire, DIP-Q (Ottosson et al., 1995) as part of a comprehensive forensic psychiatric evaluation and risk assessment procedure. It evaluates the association of dimensional and categorical measures of PD with reoffending over a three year prospective follow-up in a group of 168 offenders referred for pre-sentencing forensic psychiatric evaluation.

The TreBe project was a study of individuals referred for court ordered forensic psychiatric evaluation in Sweden between 1994 and 1999 (n=231). Individuals who were too severely ill or needed a professional interpreter to fill out the self-rating forms were excluded from the study. The primary objective was to study risk factors for reoffending. The data for paper I was taken from a study of self-assessment for PD in accordance with criteria in DSM-IV (APA, 1994) using the DSM-IV and ICD-10 personality questionnaire, DIP-Q, tool (Ottosson et al, 1995). The 135-item
questionnaire covers all DSM and ICD PD criteria, including childhood antisocial behaviour and a global assessment of functioning-item. The data collection ran during 1995-96, and the follow-up was in October 1999. At that time, 168 participants were living in the community and could be included in the study of re-offending (90% men). Of the 63 subjects not available for follow-up, sixteen were still in prison and 34 not discharged from forensic psychiatric care. Eight had died and five had been ordered out of the country as part of their sentence. The mean time in the community was 36 months.

### 3.2 STATISTICS

Descriptive statistics were used in papers I, II, IV and V to summarize and describe subject characteristics and the variables studied.

#### 3.2.1 Odds ratios

In papers I-II, and IV-V, odds ratio (OR) is used as a measure for comparing the likelihood that an individual who reoffended met the criteria for the factor studied, compared to an individual in the group that did not reoffend. The OR of 13 for homicidal thoughts seen in paper V means that a case-individual in the reoffender group was 13 times more likely to have had homicidal thoughts than an individual in the control group that did not reoffend. A significant OR value of 1 or over means that the factor in question is associated with increased likelihood of reoffending, a significant value under 1 means the factor is associated with a decreased likelihood of reoffending.

#### 3.2.2 ROC-analysis

Analysis of predictive validity of the SORM in paper V was performed using receiver operating characteristics analysis, ROC (Hanley & McNeil, 1982). The area under the curve, or AUC value, describes the likelihood that a randomly selected re-offending participant will have a higher score on the factor studied, than one that has not recidivated. A value of .50 means that the factor studied does not differentiate between re-offenders and non-recidivists, a 1.00 value total differentiation.

#### 3.2.3 \( \chi^2 \)-test

Chi-squared, or \( \chi^2 \), tests were used in paper II to investigate the difference in how many individuals in the recidivist and non-recidivist groups respectively met the criteria for dichotomous variables connected to aggressive behaviour during follow-up. For example, \( \chi^2 \)-test were used to see if significantly more individuals in the recidivism than in the non-recidivist group met the criteria for ASPD.

#### 3.2.4 T-test

T-tests were used in paper II to investigate the difference between group mean values over the continuous variables connected to aggressive behaviour during follow-up. For example, t-test were used to compare the group mean PCL-R scores to see if they were significantly higher in the recidivist group to that in the non-recidivist group.
3.3 ETHICAL CONSIDERATIONS

The COMET-project was approved by Karolinska Institute regional research ethics committee, approval 99-416.

The Swedish part of the After Care-project was approved by Gothenburg University research ethics committee, approval 1.064-98, and by Lund University research ethics committee, approval LU171-98. The Canadian part of the project has been approved by Simon Fraser University research ethics evaluation committee, dated 1998-05-07. The Finnish part has been approved by Kuopio University research ethics committee, approval 93/97. The German part has been approved by Giessen University research ethics committee, approval 93/96.

The TreBe project has been approved by Norrlands Universitetssjukhus research ethics committee, approval 95-212 and 213.
4 RESULTS

4.1 PAPER I

Of the 168 subjects, 102 (61%) met the criteria for at least one categorical PD, distributed over the three DSM-IV PD clusters: 85 subjects for at least one cluster A (51%), 73 for at least one cluster B (43%), and 83 for at least one cluster C (49%). Multiple diagnoses was the rule rather than the exception, with 126 subjects (54%) rating themselves as meeting the criteria for two or more PDs, with a mean number of 2.49. There was on the whole no correlation between participants’ self-report and clinicians’ diagnoses.

Results indicate an increased risk for general and violent reoffending for participants rating themselves as meeting the criteria for antisocial and borderline PD respectively. There was an association between self-assessed schizoid PD and violent, but not general recidivism, and, conversely, schizotypal PD diagnosis predicted general, but not violent recidivism. Dimensional analyses showed that each antisocial, borderline and histrionic PD criterion a participant assented to significantly increased the risk for general recidivism. The same was true for violent recidivism and all cluster B PDs (antisocial, borderline, histrionic and narcissistic).

Forty-one participants (24%) were diagnosed with a psychotic disorder and no relationship to increased risk of violent or general recidivism could be seen. Substance use disorders were present in 73 participants (43%) and associated with risk increase for both violent and general recidivism. Anxiety and depressive disorders, present in 32 (19%) of participants significantly decreased risk for general recidivism, and for violent recidivism, although not significantly. Categorical antisocial PD diagnosis remained significantly associated with all types of recidivism when controlling for age, substance use and depressive and anxiety disorders in a logistic regression model.
Table 1. Criminal recidivism within an average of 36 months after release or discharge among forensic psychiatric examinees in Sweden (n= 181) as related to categorical and dimensional measures of PD self-reported with the DSM-IV and ICD-10 Personality Questionnaire (DIP-Q).

<table>
<thead>
<tr>
<th></th>
<th>Any Recidivism</th>
<th>Violent Recidivism</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Categorical</td>
<td>Dimensional ¹</td>
</tr>
<tr>
<td></td>
<td>OR 95% CI</td>
<td>OR 95% CI</td>
</tr>
<tr>
<td>CLUSTER A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paranoid</td>
<td>1.07 .57 - 2.03</td>
<td>.97 .82 - 1.14</td>
</tr>
<tr>
<td>Schizoid</td>
<td>.70 .29 - 1.69</td>
<td>.93 .77 - 1.14</td>
</tr>
<tr>
<td>Schizotypal</td>
<td>1.69 .88 - 3.26</td>
<td>1.04 .91 - 1.20</td>
</tr>
<tr>
<td>CLUSTER B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antisocial</td>
<td>5.00 ¹ 1.94 - 12.92</td>
<td>1.22 ¹ 1.08 - 1.38</td>
</tr>
<tr>
<td>Borderline</td>
<td>1.51 .78 - 2.91</td>
<td>1.18 1.01 - 1.38</td>
</tr>
<tr>
<td>Histrionic</td>
<td>2.07 .51 - 8.39</td>
<td>1.17 .96 - 1.42</td>
</tr>
<tr>
<td>Narcissistic</td>
<td>2.38 .88 - 6.44</td>
<td>1.14 .96 - 1.35</td>
</tr>
<tr>
<td>CLUSTER C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidant</td>
<td>.85 .42 - 1.69</td>
<td>.94 .82 - 1.08</td>
</tr>
<tr>
<td>Dependent</td>
<td>1.38 .54 - 3.50</td>
<td>1.10 .92 - 1.31</td>
</tr>
<tr>
<td>Obsessive/</td>
<td>.93 .49 - 1.77</td>
<td>1.01 .80 - 1.27</td>
</tr>
<tr>
<td>Compulsive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any PD</td>
<td>1.49 .79 - 2.80</td>
<td></td>
</tr>
</tbody>
</table>

¹Note: OR= Odds ratio adjusted for age. 95% CI= 95% confidence interval. ² Measure was based on required number of diagnostic criteria for each PD and general impairment criteria as measured by a GAF self-rating. ³ Measure was based only on number of endorsed criteria for each specific PD. ⁴ Number of subject fulfilling criteria for a self-reported categorical PD diagnosis. a) Association remained significant when controlling for axis I co-morbidity significantly associated with outcome in univariate analyses (substance use disorders and affective or anxiety disorders). b) Association remained significant when controlling statistically for other dimensions PD measures significantly associated with outcome in univariate analysis.
4.2 PAPER II

Paper II reports on the After Care study. In the first six months following discharge, nine (7%) participants reported aggressive behaviour, in the second six-month period (six to twelve months post discharge), the figure was eleven (10%), seven of them for the first time, meaning that four participants reported aggressive behaviour in both time-slots.

The aggressive and non-aggressive participants were compared over a number of static variables associated with violence. No significant differences were seen in age at discharge, forensic versus general psychiatric care, number of previous admissions, age at first admission, history of violent crime or aggressive behaviour, ADUD, total PCL-R score, PCL-R score of 25 or over, or the score on the Cooke and Michie (2001) three factor PCL-model. The only static factor that distinguished the aggressive patients was diagnosis of ASPD, which was significant in both follow-up time-slots.

The dynamic psychiatric symptom variables were measured at the beginning of each time-slot, and change-variables calculated based on the difference between symptom levels at discharge and at follow-up six months later. Symptom levels at discharge did not differentiate between the participants who were and who were not aggressive in the first six-month follow-up. In the second follow-up slot, six to twelve months post discharge, participants who were aggressive had significantly higher ratings of TCO-symptoms and depression at the six-month follow-up interview. Aggressive participants were significantly less likely to be compliant with medication in the first time-slot, and significantly more likely to be receiving depot medication in the second time-slot. In the second time slot, more aggressive patients reported drinking and taking drugs at the six month follow-up, but this was only significant with respect to drug taking.

When calculating the association between all the different measures of clinical symptoms, we controlled for ASPD, PCL-R score and past diagnoses (first follow-up period) or current self-report (second follow-up period) of any SUD. The effect of psychiatric symptom levels on aggressive behaviour in the following six months was calculated using logistic regression modelling. In all models, ASPD was entered as a control variable as this was the only static factor do distinguish aggressive participants in this study, increasing the risk of aggressive behaviour by about five times in both time-slots. Having a PCL-R score of 25 or over did not increase risk ratios, nor did past SUD or alcohol or drug use during the follow-up. In the first six months in the community, having a severe positive symptom at discharge was the only clinical symptom that was associated with a risk increase. The same was true in the second follow-up period, and then also for presence of, or increase in, TCO symptoms. “Feeling threatened” and “feeling your mind is controlled” were the two symptoms most often reported by aggressive participants. There was no risk reduction effect of depot medication or community treatment after controlling for severe positive symptoms and/or TCO symptoms.
4.3 PAPER III

Paper III describes the development of the structured outcome assessment and community risk monitoring format (SORM). The purpose for the design of the format was i) to create a structured method for treatment evaluation and outcome assessment for use in forensic psychiatric and correctional services and ii) to create a structured method for risk monitoring for use with forensic psychiatric patients discharged into the community. The rationale for this design was to create a comprehensive risk management model, comprising the two necessary components for risk management: risk monitoring or supervision, which will then guide intervention decisions. The model was also designed to be used to evaluate type and level of intervention given and the effect on risk level. The need for developing comprehensive risk management methodology is urgent, as is the need for structured evaluation of interventions aimed at reducing reoffending in forensic and correctional clients. By designing a model that can be used to structure the risk management process, at the same time specifying the treatment evaluation protocol, both these clinical and management needs can be met. The SORM model makes it possible to evaluate the whole risk management process over more outcome variables than what has been common in research into risk management, where it is common to use a single dichotomous reoffending variable, or possibly two, where this is split into violent and non-violent recidivism.

The SORM risk management areas, or outcome measures, depending on what it is being used for, are divided into five areas: health and social welfare services consumption, psychosocial adjustment, clinical factors, subjective quality of life, and reoffending. The SORM was developed in two steps. First, a project team of forensic mental health researchers and experienced clinicians was formed, and a pilot study of outcome carried out to explore the different dimensions of the term. This process and the results are described in Stähle and colleagues (2001). Eleven discharged forensic psychiatric patients, released from a high security hospital, were interviewed about their experiences in forensic psychiatric care, and their life situation after. Three levels of outcome were identified: macro-level (societal economical costs, such as re-hospitalisations, after-care, financial support, and public safety aspects such as recidivism-rates); medio-level: (social network, living conditions, clinical factors such as residual psychiatric problems, substance use); and micro-level (the subject’s own perception of overall quality of life, physical and mental health, sense of coherence). The SORM 30 item checklist was then created through a consensus process based on the pilot study. A detailed description of this process and the instrument itself is given in the method section of this dissertation.
4.4 PAPER IV

Paper IV reports on the COMET-2 study, the prospective follow-up of discharged forensic psychiatric patients. The analysis of predictive validity of the SORM was made using receiver operating characteristics analysis. The association between individual SORM factors and re-offending was described by calculation of odds ratios.

Forty-one participants reported violent acts during follow-up, the first outcome variable, other criminality, the second, and being in risk situations (meaning that a violent act would most likely have been committed by the participant had they not been stopped), the third outcome factor in this study. The predictive validity of the SORM and its subscales one month before, and the same month as a violent or any incident is shown in figures 1 and 2, respectively.

![Figure 2](image_url)

**Figure 2.** Area under the ROC-curve (AUC) of SORM subscales and total score measured at three different time points and violent reoffending in the community among 72 forensic psychiatric patients convicted of violent offences in Sweden.

**Note:** Baseline refers to SORM assessment carried out before discharge, T-1 to the assessment the month before violent re-offending, and T0 to the SORM assessment performed in the same month as the re-offending. Error bars indicate 95% confidence intervals for AUC estimates.
Figure 3. Area under the ROC-curve (AUC) of SORM subscales and total score measured at three different time points and any incident in the community among 72 violently convicted forensic psychiatric clients in Sweden.

Note: Any incident refers to at least one of a violent act, other non-violent criminality, or having been in a risk situation. Baseline refers to SORM assessment carried out before discharge, T-1 to the assessment the month before violent re-offending, and T0 to the SORM assessment performed in the same month as the re-offending. Error bars indicate 95% confidence intervals for AUC estimates.

The odds ratios of SORM factors at baseline as related to outcome during monthly follow-ups during 3 to 24 months is shown in Table 1. Having financial problems at discharge was significantly associated with violence and other criminal acts and risk situations during follow-up. Participants who rated themselves over 25 on the 0-100 VAS scale for risk for violence in the upcoming month were eleven times more likely to commit an act of violence during the follow-up.
Table 1. Prospective associations of SORM^ risk/needs factors^ measured at baseline with reoffending upon discharge into the community among 72 violently convicted forensic psychiatric clients in Sweden.

<table>
<thead>
<tr>
<th>Item</th>
<th>VIOLENT ACT</th>
<th>ANY INCIDENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unadjusted odds ratio</td>
<td>95% confidence interval</td>
</tr>
<tr>
<td>1. Correctional treatment</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>2. Psychiatric institutional treatment</td>
<td>1.34</td>
<td>0.26-6.94</td>
</tr>
<tr>
<td>3. Professional support and contacts</td>
<td>1.15</td>
<td>0.12-11.12</td>
</tr>
<tr>
<td>4. Physical health care</td>
<td>3.13</td>
<td>0.91-10.81</td>
</tr>
<tr>
<td>5. Occupational training</td>
<td>0.77</td>
<td>0.22-2.71</td>
</tr>
<tr>
<td>6. Lack of housing</td>
<td>0.36</td>
<td>0.07-1.75</td>
</tr>
<tr>
<td>7. Economy</td>
<td>4.60</td>
<td>1.39-15.20</td>
</tr>
<tr>
<td>8. Work</td>
<td>1.64</td>
<td>0.51-5.30</td>
</tr>
<tr>
<td>9. Leisure</td>
<td>0.90</td>
<td>0.29-2.75</td>
</tr>
<tr>
<td>10. Daily functioning</td>
<td>2.78</td>
<td>0.68-11.42</td>
</tr>
<tr>
<td>11. Family</td>
<td>1.80</td>
<td>0.20-16.15</td>
</tr>
<tr>
<td>12. Partner</td>
<td>1.50</td>
<td>0.44-5.12</td>
</tr>
<tr>
<td>13. Children</td>
<td>0.82</td>
<td>0.25-2.69</td>
</tr>
<tr>
<td>14. Friends</td>
<td>0.79</td>
<td>0.23-2.51</td>
</tr>
<tr>
<td>15. Lack of insight</td>
<td>0.75</td>
<td>0.25-2.28</td>
</tr>
<tr>
<td>16. Mood symptoms</td>
<td>0.89</td>
<td>0.27-2.92</td>
</tr>
<tr>
<td>17. Anxiety symptoms</td>
<td>1.04</td>
<td>0.31-3.47</td>
</tr>
<tr>
<td>18. Psychotic symptoms</td>
<td>0.68</td>
<td>0.07-6.28</td>
</tr>
<tr>
<td>19. Instability</td>
<td>2.73</td>
<td>0.75-9.96</td>
</tr>
<tr>
<td>20. Suicidal ideation and attempts</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>21. Homicidal thoughts</td>
<td>4.33</td>
<td>0.95-19.84</td>
</tr>
<tr>
<td>22. Lack of treatment motivation</td>
<td>1.86</td>
<td>0.54-6.46</td>
</tr>
<tr>
<td>23. Pharmacological treatment</td>
<td>0.83</td>
<td>0.20-3.52</td>
</tr>
<tr>
<td>24. Substance abuse</td>
<td>6.23</td>
<td>0.94-41.20</td>
</tr>
<tr>
<td>25. Health^d</td>
<td>1.58</td>
<td>0.47-5.24</td>
</tr>
<tr>
<td>26. Quality of life^d</td>
<td>1.64</td>
<td>0.45-5.99</td>
</tr>
<tr>
<td>27. Risk of violence^d</td>
<td>11.11</td>
<td>1.77-69.95</td>
</tr>
</tbody>
</table>

Notes: a) The Structured Outcome Assessment and Community Risk Monitoring Protocol. b) The presence of all 27 factors was assessed one month after discharge and related to re-offending self-reported at monthly follow-ups in the community 3 to 24 months following discharge. c) Any incident refers to at least one of a violent act, other non-violent criminality, or having been in a risk situation. d) The number of individuals who subjectively rated this variable varied between 58 and 70. Figures in bold indicate unadjusted odds ratios significant at p<.05 (equivalent to 95% confidence intervals not including 1.00). n.a. indicates not enough observations for analysis.
The odds ratios of SORM factors one month before re-offending as related to outcome during monthly follow-ups in month three to 24 are shown in table 2. Participants have now been discharged and are living in the community. Presence of some of the clinical factors lack of insight, instability, non-compliance with treatment plan, and receiving pharmacological treatment, were associated with increased odds for re-offending during the follow-up.
Table 2. Prospective associations of SORM® risk/needs factors\(^a\) measured in the month before reoffending and outcome among 71 violently convicted forensic psychiatric clients in Sweden.

<table>
<thead>
<tr>
<th>Item</th>
<th>VIOLENT ACT</th>
<th></th>
<th>ANY INCIDENT(^b)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unadjusted</td>
<td>95%</td>
<td>Unadjusted</td>
<td>95%</td>
</tr>
<tr>
<td></td>
<td>odds ratio</td>
<td>confidence</td>
<td>odds ratio</td>
<td>confidence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>interval</td>
<td></td>
<td>interval</td>
</tr>
<tr>
<td>1. Correctional treatment</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>2. Psychiatric institutional treatment</td>
<td>2.15</td>
<td>0.67–6.88</td>
<td>0.99</td>
<td>0.39–2.55</td>
</tr>
<tr>
<td>3. Professional support and contacts</td>
<td>0.67</td>
<td>0.18–2.52</td>
<td>0.39</td>
<td>0.11–1.38</td>
</tr>
<tr>
<td>4. Physical health care</td>
<td>0.56</td>
<td>0.11–2.85</td>
<td>0.51</td>
<td>0.16–1.66</td>
</tr>
<tr>
<td>5. Occupational training</td>
<td>0.51</td>
<td>0.10–2.55</td>
<td>0.61</td>
<td>0.19–1.92</td>
</tr>
<tr>
<td>6. Lack of housing</td>
<td>1.91</td>
<td>0.60–6.01</td>
<td>0.92</td>
<td>0.36–2.40</td>
</tr>
<tr>
<td>7. Economy</td>
<td>1.90</td>
<td>0.49–7.31</td>
<td>0.88</td>
<td>0.26–2.96</td>
</tr>
<tr>
<td>8. Work</td>
<td>1.15</td>
<td>0.34–3.87</td>
<td>2.06</td>
<td>0.71–5.92</td>
</tr>
<tr>
<td>9. Leisure</td>
<td>0.57</td>
<td>0.18–1.78</td>
<td>0.98</td>
<td>0.38–2.53</td>
</tr>
<tr>
<td>10. Daily functioning</td>
<td>2.55</td>
<td>0.53–12.18</td>
<td>2.56</td>
<td>0.48–13.66</td>
</tr>
<tr>
<td>11. Family</td>
<td>n.a.</td>
<td>n.a.</td>
<td>0.48</td>
<td>0.09–2.68</td>
</tr>
<tr>
<td>12. Partner</td>
<td>2.00</td>
<td>0.60–6.62</td>
<td>4.50</td>
<td>1.32–15.33</td>
</tr>
<tr>
<td>13. Children</td>
<td>0.39</td>
<td>0.10–1.53</td>
<td>0.76</td>
<td>0.29–2.03</td>
</tr>
<tr>
<td>14. Friends</td>
<td>1.01</td>
<td>0.28–3.65</td>
<td>0.92</td>
<td>0.32–2.65</td>
</tr>
<tr>
<td>15. Lack of insight</td>
<td>3.09</td>
<td>0.93–10.26</td>
<td>2.57</td>
<td>0.97–6.82</td>
</tr>
<tr>
<td>16. Mood symptoms</td>
<td>1.20</td>
<td>0.33–4.42</td>
<td>2.23</td>
<td>0.69–7.19</td>
</tr>
<tr>
<td>17. Anxiety symptoms</td>
<td>1.02</td>
<td>0.25–4.26</td>
<td>1.51</td>
<td>0.45–5.07</td>
</tr>
<tr>
<td>18. Psychotic symptoms</td>
<td>4.42</td>
<td>0.79–24.63</td>
<td>1.61</td>
<td>0.28–9.43</td>
</tr>
<tr>
<td>19. Instability</td>
<td>13.50</td>
<td>2.29–79.51</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>20. Suicidal ideation and attempts</td>
<td>n.a.</td>
<td>n.a.</td>
<td>0.76</td>
<td>0.10–5.75</td>
</tr>
<tr>
<td>21. Homicidal thoughts</td>
<td>8.46</td>
<td>0.71–100.58</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>22. Lack of treatment motivation</td>
<td>5.56</td>
<td>1.46–21.13</td>
<td>4.83</td>
<td>0.97–23.98</td>
</tr>
<tr>
<td>23. Pharmacological treatment</td>
<td>1.09</td>
<td>0.26–4.50</td>
<td>0.14</td>
<td>0.03–0.69</td>
</tr>
<tr>
<td>24. Substance abuse</td>
<td>2.00</td>
<td>0.33–12.13</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>25. Health</td>
<td>1.82</td>
<td>0.53–6.28</td>
<td>1.05</td>
<td>0.37–3.01</td>
</tr>
<tr>
<td>26. Quality of life</td>
<td>1.67</td>
<td>0.47–5.90</td>
<td>0.64</td>
<td>0.22–1.82</td>
</tr>
<tr>
<td>27. Risk of violence</td>
<td>3.00</td>
<td>0.62–14.63</td>
<td>1.46</td>
<td>0.32–6.66</td>
</tr>
</tbody>
</table>

Notes: a) The Structured Outcome Assessment and Community Risk Monitoring Protocol. b) The presence of all 27 factors was assessed at monthly follow-ups in the community during 3-24 months following discharge, and compared between self-reported re-offenders and those not reoffending. c) Any incident refers to at least one of a violent act, other non-violent criminality, or having been in a risk situation. d) The number of individuals who subjectively rated this variable varied between 58 and 70. Figures in bold indicate unadjusted odds ratios significant at \( p < 0.05 \) (equivalent to 95% confidence intervals not including 1.00). n.a. indicates not enough observations for analysis.
The odds ratios of SORM factors related to outcome during monthly follow-ups in month three to 24, with reference to nested cases’ SORM protocols the same month as the incident are shown in table 3. Being re-admitted to a psychiatric clinic increased the odds of violence six times. Presence of the clinical factors lack of insight, mood symptoms, psychotic symptoms, instability, homicidal thoughts, non-compliance with treatment and receiving pharmacological treatment, increased the odds of re-offending or being in a risk situation. Self-assessed risk of violence increased the odds of violent re-offending by almost ten times.
Table 3. Associations of SORM risk/needs factors measured in the same month as reoffending and outcome among 72 violently convicted forensic psychiatric clients in Sweden.

<table>
<thead>
<tr>
<th>Item</th>
<th>VIOLENT ACTS</th>
<th>ANY INCIDENT*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unadjusted odds ratio</td>
<td>95% confidence interval</td>
</tr>
<tr>
<td>1. Correctional treatment</td>
<td>7.86</td>
<td>0.66–93.00</td>
</tr>
<tr>
<td>2. Psychiatric institutional treatment</td>
<td>6.22</td>
<td>1.59–24.31</td>
</tr>
<tr>
<td>3. Professional support and contacts</td>
<td>1.06</td>
<td>0.26–4.37</td>
</tr>
<tr>
<td>4. Physical health care</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>5. Occupational training</td>
<td>0.58</td>
<td>0.15–2.30</td>
</tr>
<tr>
<td>6. Lack of housing</td>
<td>1.85</td>
<td>0.60–5.67</td>
</tr>
<tr>
<td>7. Economy</td>
<td>2.73</td>
<td>0.75–9.96</td>
</tr>
<tr>
<td>8. Work</td>
<td>1.04</td>
<td>0.31–3.47</td>
</tr>
<tr>
<td>9. Leisure</td>
<td>0.45</td>
<td>0.14–1.41</td>
</tr>
<tr>
<td>10. Daily functioning</td>
<td>1.39</td>
<td>0.32–5.97</td>
</tr>
<tr>
<td>11. Family</td>
<td>1.00</td>
<td>0.19–5.37</td>
</tr>
<tr>
<td>12. Partner</td>
<td>1.64</td>
<td>0.51–5.20</td>
</tr>
<tr>
<td>13. Children</td>
<td>0.52</td>
<td>0.15–1.80</td>
</tr>
<tr>
<td>14. Friends</td>
<td>1.31</td>
<td>0.32–5.31</td>
</tr>
<tr>
<td>15. Lack of insight</td>
<td>4.30</td>
<td>1.23–15.03</td>
</tr>
<tr>
<td>16. Mood symptoms</td>
<td>2.71</td>
<td>0.87–8.45</td>
</tr>
<tr>
<td>17. Anxiety symptoms</td>
<td>1.10</td>
<td>0.30–4.01</td>
</tr>
<tr>
<td>18. Psychotic symptoms</td>
<td>7.80</td>
<td>1.86–32.75</td>
</tr>
<tr>
<td>19. Instability</td>
<td>39.00</td>
<td>8.52–178.57</td>
</tr>
<tr>
<td>20. Suicidal ideation and attempts</td>
<td>0.68</td>
<td>0.07–6.28</td>
</tr>
<tr>
<td>21. Homicidal thoughts</td>
<td>12.27</td>
<td>2.10–71.57</td>
</tr>
<tr>
<td>22. Lack of treatment motivation</td>
<td>11.49</td>
<td>3.21–41.12</td>
</tr>
<tr>
<td>23. Pharmacological treatment</td>
<td>1.71</td>
<td>0.34–8.66</td>
</tr>
<tr>
<td>24. Substance abuse</td>
<td>3.13</td>
<td>0.91–10.81</td>
</tr>
<tr>
<td>25. Health</td>
<td>1.80</td>
<td>0.54–6.01</td>
</tr>
<tr>
<td>26. Quality of life</td>
<td>4.33</td>
<td>1.07–17.52</td>
</tr>
<tr>
<td>27. Risk of violence</td>
<td>9.82</td>
<td>1.99–48.43</td>
</tr>
</tbody>
</table>

Notes: a) The Structured Outcome Assessment and Community Risk Monitoring Protocol. b) The presence of all 27 factors was assessed one month after discharge and related to re-offending self-reported at monthly follow-ups in the community 3 to 24 months following discharge. c) Any incident refers to a report of any of the outcome variables; violent incidents, other criminality, and risk situations. Figures in bold indicate unadjusted odds ratios significant at p<.05 (equivalent to 95% confidence intervals not including 1.00). n.a. indicates not enough observations for analysis.
4.5 PAPER V

Paper V reports on the COMET-1 study, the case-control, retrospective follow-up of rapid repeat violent offenders. The OR’s for the SORM factors are shown in table 4. On the whole, it is the clinical factors that show the highest ORs for violent reoffending, but having a difficult financial situation and having a partner was also associated with significant risk increase. The SORM factor that was associated with the highest risk for rapid reoffending was the instability item, present in almost half of case respondents. Active substance use was 27 times more common in the case group, confirming the large body of previous research and clinicians’ perception that discontinuing sobriety is one of the most critical risk factors for violent reoffending. The OR for homicidal thoughts was thirteen, meaning that individuals with homicidal thoughts were thirteen times more likely to exhibit homicidal thoughts than the control group. Although less common than other risk factors, it may still be critical to include in risk management. Several factors are significant protective factors for violence: receiving in- and outpatient treatment, having meaningful leisure activities and contact with family of origin, and receiving pharmacological treatment.
<table>
<thead>
<tr>
<th>SORM Factor</th>
<th>Frequency %</th>
<th>Odds Ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SORM 1 Detention/correctional treatment</td>
<td>9.6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SORM 2 Psychiatric institutional treatment</td>
<td>25.2</td>
<td>0.17</td>
<td>0.07 – 0.45</td>
</tr>
<tr>
<td>SORM 3 Professional support and contacts</td>
<td>61.7</td>
<td>0.24</td>
<td>0.11 – 0.56</td>
</tr>
<tr>
<td>SORM 4 Physical health-care</td>
<td>19.5</td>
<td>0.82</td>
<td>0.32 – 2.08</td>
</tr>
<tr>
<td>SORM 5 Occupational training/services</td>
<td>26.1</td>
<td>0.77</td>
<td>0.34 – 1.78</td>
</tr>
<tr>
<td>SORM 6 Housing</td>
<td>33.9</td>
<td>0.59</td>
<td>0.27 – 1.29</td>
</tr>
<tr>
<td>SORM 7 Economy</td>
<td>33.0</td>
<td>4.08</td>
<td>1.70 – 9.75</td>
</tr>
<tr>
<td>SORM 8 Work</td>
<td>25.2</td>
<td>0.85</td>
<td>0.37 – 1.97</td>
</tr>
<tr>
<td>SORM 9 Leisure</td>
<td>48.7</td>
<td>0.28</td>
<td>0.13 – 0.61</td>
</tr>
<tr>
<td>SORM 10 Daily functioning</td>
<td>17.9</td>
<td>1.78</td>
<td>0.65 – 4.86</td>
</tr>
<tr>
<td>SORM 11 Family</td>
<td>86.0</td>
<td>0.23</td>
<td>0.06 – 0.86</td>
</tr>
<tr>
<td>SORM 12 Partner</td>
<td>52.2</td>
<td>7.35</td>
<td>3.21 – 16.80</td>
</tr>
<tr>
<td>SORM 13 Children</td>
<td>29.6</td>
<td>0.46</td>
<td>0.20 – 1.03</td>
</tr>
<tr>
<td>SORM 14 Friends</td>
<td>81.6</td>
<td>1.10</td>
<td>0.43 – 2.85</td>
</tr>
<tr>
<td>SORM 15 Lack of insight</td>
<td>38.9</td>
<td>0.89</td>
<td>0.42 – 1.91</td>
</tr>
<tr>
<td>SORM 16 Mood symptoms</td>
<td>46.4</td>
<td>3.97</td>
<td>1.79 – 8.78</td>
</tr>
<tr>
<td>SORM 17 Anxiety symptoms</td>
<td>28.4</td>
<td>3.72</td>
<td>1.48 – 9.34</td>
</tr>
<tr>
<td>SORM 18 Psychotic symptoms</td>
<td>15.0</td>
<td>2.30</td>
<td>0.75 – 7.04</td>
</tr>
<tr>
<td>SORM 19 Instability</td>
<td>46.5</td>
<td>115.91</td>
<td>24.45 – 549.56</td>
</tr>
<tr>
<td>SORM 20 Suicidal ideation/attempts</td>
<td>8.0</td>
<td>3.30</td>
<td>0.66 – 16.66</td>
</tr>
<tr>
<td>SORM 21 Homicidal thoughts</td>
<td>11.7</td>
<td>13.02</td>
<td>1.63 – 104.03</td>
</tr>
<tr>
<td>SORM 22 Lack of treatment motivation</td>
<td>25.9</td>
<td>2.39</td>
<td>0.97 – 5.86</td>
</tr>
<tr>
<td>SORM 23 Pharmacological treatment</td>
<td>60.7</td>
<td>0.15</td>
<td>0.06 – 0.36</td>
</tr>
<tr>
<td>SORM 24 Substance abuse</td>
<td>41.2</td>
<td>27.16</td>
<td>8.56 – 86.12</td>
</tr>
</tbody>
</table>
5 DISCUSSION

The purpose of the research described in this thesis was to contribute to the knowledge base on the role of clinical factors in risk management and to that end it includes papers on methodology of risk assessment and monitoring focusing on dynamic factors, and on the relative merits of clinical factors for risk management.

At first glance, the results of the studies on clinical factors and recidivism compiled in this thesis are contradictory. This is true for clinical factor measures of ASPD and PPD, one of the most robust risk factors for re-offending, for depression, anxiety disorders, substance use, and for psychosis.

Self-reported ASPD and other cluster B PD criteria predicts violent reoffending (paper I), but the self-report diagnoses were not congruent with the diagnoses made by the forensic clinicians, maybe supporting the old flipping-coins debate about clinicians missing the point when it comes to forensic evaluation. One alternate explanation for this may be that the purpose of the pre-sentencing evaluation of offenders in Sweden when the study was performed was to establish if the offenders suffers from a MMD, and if this has influenced the offence behaviour. No risk assessment was carried out, even though the court was to decide on risk of recidivism when choosing between restricted or non-restricted sentence of forensic psychiatric care. Diagnosing PD in a group of offenders with main diagnoses on DSM axis I may be moved down on the agenda, or not performed at all, as there has been an idea in psychiatry that psychosis erases pre-morbid personality. This has been disproven by studies on the relative influence of MMD and PD by Tengström and colleagues (2004) amongst others, showing that pre-morbid personality may explain a large part of criminality in offenders with MMD in some cases. It may be that underlying personality traits such as level of hostility and impulsivity influence how MMD is expressed and how it is acted upon (McNeil, Eisner & Binder, 2003). It may also be that persons with pre-morbid antisocial lifestyles have aggressive behavioural strategies closer at hand. These may be more easily triggered or less readily controlled when the debilitating effects of MMD are added to the burden. They may also have core beliefs about other people and the world in general that focus on hostility and the need to protect oneself from the control and ill-will of others.

Returning to the contradictory results of study I, it is the self-reported antisocial personality disorder criteria and other cluster B criteria that best predict re-offending, not clinicians’ diagnoses. In paper II, clinician diagnosed ASPD did predict aggression during the first year post discharge, but PPD, as measured by the PCL-R, generally considered to be one of the strongest predictive factors for reoffending, did not predict in either After Care or in the COMET 2 study.

Looking at psychosis and the risk of re-offending, in paper I, no such association was seen, whereas positive symptoms and TCO symptoms were the strongest predictors of aggression in paper II, after controlling for ASPD, PPD and SUD. In the COMET 2-
study (paper IV), psychosis was only associated with reoffending in the same follow-up month as reoffending occurred, making it difficult to draw conclusions about causal direction. In the COMET 1-study (paper V) it was the score on the clinical factors subscale of the SORM that best predicted re-offending, but none of the psychosis items were significantly associated with re-offending on their own. Mood and anxiety symptoms were associated with decreased risk of re-offending in study I and V, and with increased risk of aggression in paper II. Mood symptoms increased likelihood of putting oneself at risk for re-offending in paper IV. Substance use was associated with general and violent re-offending in papers I and V, unrelated to aggressive behaviour in paper II and unrelated to all the outcome variables in paper IV.

This comparative run-through of the results of the papers collected in this thesis perfectly mirrors the research field reviewed at the start of this thesis, where the association between clinical factors and reoffending varies with research population, setting and design.

In the four studies reported on in this thesis there is a difference in the time-frame between when clinical factors and the outcome variables are measured. Paper I measures symptoms up to three years before re-offending, paper II up to six months in advance, paper IV up to 30 days in advance, and paper V assesses symptoms on the day of re-offending, but retrospectively up to one year after the fact. The variability of psychiatric symptoms is something that needs to be taken into account when evaluating studies on clinical factors and aggression (Skeem et al., 2006), and it may be that different types of disorders and symptoms need different follow-up windows to be visible in a way that is useful from a risk management point of view. Knowing about clinical symptoms and violence in general is important for risk management, but even more so knowing the detailed offence history of the individual being assessed and how clinical factors have influenced their behaviour before. A thorough case conceptualisation must be the basis of any detailed risk management plan, and can never be omitted for reliance on knowledge of base-rates of re-offending, OR’s of risk factors, or the use of ARAIs or older types of SCJs where case conceptualisation is not featured.

It may be that some of the differences in results between the four studies included in this thesis may be due to differences in study groups and settings. Three studies focus mainly on forensic psychiatric patients whereas one paper (V) focuses mainly on prison service clients (a majority of offenders undergoing pre-sentencing forensic psychiatric evaluation will go on to be transferred to the prison service). There is also a difference in the proportion of women participants, with only men in the After Care-study (paper II) and a disproportionately large rate of women included in the COMET 2 study compared to the COMET 1. This is something that may affect the size of the ORs of risk factors (if not the general direction), as women generally offend and reoffend at lower rates than men. Another factor that likely caused some of the disparity in results is the different designs used. Although three of four studies were prospective follow-
ups, the clinical factor measures used and the sampling time-frame, as discussed above, were dissimilar enough to make direct comparison difficult.

Paper IV and V investigate the factors chosen for inclusion in the SORM related to reoffending, in paper IV using a prospective longitudinal design, and in paper V using a retrospective case-control design. One important aspect of these two studies is the comparison of the HCR-20, PCL-R and SORM ratings at discharge, where none of them predicted reoffending. This points to a profound problem in clinical practice and research, namely the obvious fact that risk is the result of a complex interaction over time of individual and environment factors, something which is seldom addressed in research designs and may be one reason behind the many contradictory results in the risk assessment field. Many studies on risk of reoffending leave out the fact that dynamic factors are just that, ever changing, and research them as if they were static. Symptoms of MMD wax and wane, sometimes within the hour, sometimes in minutes, as stress levels influence the general functioning of patients, and being in a high risk situation can drive up stress levels and thereby psychiatric symptoms in and of itself. Dynamic risk factors are captured best if the risk monitoring is carried out at intervals matched to the variability rate described in a thorough risk formulation. Using the SORM for the case formulation, as well as for risk management, makes it possible to assess dynamic factors in dynamic way, as and when needed, not at discharge, or at arbitrarily set follow-up points based on legislation or agency practice documents, or only carried out when needed to make legal decisions, such as for probation hearings.

One interesting aspect of the results of both papers I and IV is that self-report was shown to significantly predict reoffending. Self-reported antisocial personality traits and self-assessed risk of violence in the upcoming month outperformed clinical diagnoses and the gold standard instruments PCL-R and HCR-20 used by experienced clinicians as predictors of reoffending. In forensic psychiatry and correctional services, the main focus in assessment has been on describing risk factors, and assessment has therefore come to rely more or less exclusively on objective sources and static, historical factors. Asking the offender about what their problems are and how they think they will manage in near future may be a lost art that is now being reintroduced in the newer versions of SCIs such as the HCR-20 (in the risk management section: a client’s mode of thinking, in this case the degree of antisocial attitudes and identification), and as a central feature of the VRS (Wong, Gordon & Gu, 2007). This type of factor has not been a major focus in risk assessment and management research. Research into all other change processes, such as psychotherapy or addiction support groups focus to a large extent on changing thinking patterns and self-assessment. This has come into use in corrections through treatment programs based on cognitive behavioural therapy, such as Aggression Replacement Training (for a description of correctional applications, see Hatcher et al., 2008), and programs focusing on relational skills for sexual offenders, and abstinence skills for addicts. In the new VRS development by Wong and colleagues, the treatment and risk monitoring aspects of client work has been combined for the first time into a comprehensive system that covers the whole process, based on the stages of change-theory to assess if the work is
progressing. It is unlikely the fault of the clinicians using the PCL-R and HCR-20 instruments that they did not predict reoffending in the studies included in this thesis, but rather that the instruments are straight rulers being used to measure a curve. The measurement is correct, but only a section of the phenomenon of reoffending has been measured. New methods for doing risk management work are emerging, and using the VRS, RSVP and others like them, it may be that we have a more flexible tool that can be bent to fit the time-frame in which we want to assess risk, and describe the risk profile of the offender being assessed, and not the other way around.

Paper III describes the methodological development of what is hopefully one of those bendy rulers, the SORM, which is the principle data collection tool for the last two papers. In the SORM paper, we stated that the development of new methods of risk management was an important task and urgently needed. More risk management tools have been introduced in the years since the SORM was created, even if the SORM has features that no other new risk management model has, showing both that the research group involved in the development of the SORM had their ears to the ground with respect to what was needed to further risk management work, but also that many of the ideas were unique. The idiographic part of the SORM was an analogue to the case-formulation principle in the new structured clinical guidelines, such as RSVP (Hart et al., 2003), and the risk effect rating is still a unique feature that is very useful for the purpose of case formulation.

Case formulation is a central process when planning interventions in psychotherapy. But the move away from unstructured clinical assessment toward a focus on prediction algorithms and the ability of individual factors to predict reoffending has meant that the art of case formulation has had to be reintroduced as a novel idea in risk management. For a long time, offenders have not been analysed as the complex beings they are, but assessed over a list of known risk factors for violence, leaving much to ask when it comes to having enough information to do good risk management work. Statistical correlation between carefully operationalised items and reoffending has been the focus of research. Studies focusing on pathways to reoffending in different offender populations or the interaction effects of all these risk factors, and research into protective factors have been in minority (Haggard, Gumpert & Grann, 2001). Finding the factors with the highest ORs and building the predictive algorithm or risk factor checklist with the highest ROC-value has been what was going to win the grand prize. In the ten years that have passed since the start of the development of SORM, when the ideas underlying its development seemed radical, much has happened and today the zeitgeist is much changed. The need for comprehensive risk management models is apparent to most forensic clinicians and researchers, and can be seen in the new developments in clinical guidelines and in the research being published. Leading researchers in the forensic field are no longer publishing on individual factors and their ability to predict violence, but are instead taking on bigger tasks of integration and overall analysis of the field, basic research into constructs such as PPD, and discuss the principles of risk assessment and management from a higher level of abstraction.
The focus of this thesis was to explore the role of clinical factors in risk management. In order to manage risk effectively in the new paradigm of trying to prevent, rather than predict violence, we need to know not only what factors are correlated with violence, but even more so what dynamic factors and events precede and destabilize the individual so that he or she acts violently. We need risk management tools that allow clinicians in forensic practice to work in a structured manner within a framework that safeguards that all relevant factors are assessed, and that conclusions are drawn and risk management strategies implemented in a way that will make it possible to evaluate what has been done and what effect it has had. This structure will also make it possible for service providers and case managers to evaluate what is being done and how this is impacting individual clients as well as how production goals are being met.

How do we know what to include in the evaluation of a client? Should we keep assessing static factors because they have been shown to correlate highly with violent reoffending, and keep trying to build more accurate predictive algorithms? Should we keep assessing clinical, dynamic factors that have a sometimes weaker statistical association with violent reoffending, because we know that we as clinicians can do something about them?

When it comes to evaluating risk management methodology, the proof of the pudding, as they say, is in the eating. The simplest measure of effectiveness is easier than any statistical measure of association and any predictive algorithm. If the method is used and it contributes to reducing reoffending rates among forensic clients, we’ve got the recipe right. Different puddings require different ingredients, even if most puddings will have many ingredients in common. Stephen Hart writes up a basic recipe for what a risk management method should include in the manual for RSVP (Hart et al., 2003). Among the criteria is that the procedure should gather information concerning multiple domains of functioning, both static and dynamic factors, using multiple methods, from multiple sources. The method should allow re-assessment to evaluate change over time and be comprehensive. The final criteria is that implementation of the procedure should result in reduction of re-offending, stating that the procedure “must go beyond the making of static predictions and assist decision making with respect to the planning and delivery of services” (p. 10). When assessing a client, we need to choose what ingredients to include in the evaluation so the case formulation flows from the assessment without any major grey areas. Several aspects need to be taken into account when planning the assessment.

First of all, we need to look at what is on the client’s offence repertoire, as different types of offences are related to different risk and protective factors. For instance, when it comes to fire-setting, there are two main groups of motivators: economical or other gain, such as revenge, acting on aggressive impulse, on the one hand, and motives connected to psychiatric illness, such as psychosis and compulsive fire-setting. There will be different questions to ask and different evaluations to do if the offender is sentenced for sex offences, robberies or drug trafficking. We need to be sure to include
factors to capture the different possible motivators and triggers for the offence behaviour.

Secondly, we need to look at offender characteristics, as they can point to specific elements of evaluation to be included. For instance, in juvenile offenders, it is important to chart social network factors and family factors, and atypical signs of psychiatric illness such as depression in violent offenders, and early signs of developing PD. In adult persistent with a history of substance abuse, it may be important to include assessment of antisocial identification and lifestyle, but in a first-time violent offender in his 70’s, it may be more relevant to test for dementia, and in a woman who has harmed her new-born baby, signs of post-partum psychosis.

Thirdly, we need to take into account the purpose of the assessment, what the setting is and where in the process the offender is. Risk management in a psychiatric emergency or police custody setting will need other risk management parameters described than a plan for parole or community service.

In short, we need

- a menu of assessment tools summarising research and knowledge generated through clinical practice, to match all commonly seen offender and crime characteristics
- an overreaching framework to structure evaluations
- a framework for reporting findings and drawing conclusions in a way that is open and thereby possible to evaluate
- a framework for risk management planning, implementation and evaluation

The SORM is a framework that covers the second and last points, and the RSVP and VRS tools cover all but the first points (although the VRS has a parallel sex offender tool, the SVRS). Maybe we will see tools that meet all there criteria, and others, in future methodological developments by research groups and professional agencies. And although the SORM is still incomplete as a risk management tool, the level of sophistication and comprehensiveness of the assessment in terms of what we learn about the assessee is a large improvement on the older ARAI and risk factor checklist tools, in terms of being useful for setting up a risk management plans, tracking and evaluating the treatment and risk management process.

The papers in this thesis, as most of the research on risk assessment to this date, have focused on relatively simple associations between individual factors or groups of factors and offending. We know something about how the factors that we consider important to monitor and work with from a clinical and theoretical view-point co-vary, but we may further improve our ability to prevent violent offending if we zoom out and try to see the larger picture. From such a vantage point, there are at least two very interesting pathways visible; one that branches out, and one that digs deeper, finding new ways to impact violent offending rates.
By branching out, creating forums for inter-disciplinary and inter-agency interaction and co-operation, both in research and development, as in the practical, day-to-day work in communities, we can hope to reach further in reducing crime statistics than if the work is carried out without a view of the larger picture of how violence impacts our societies and what factors contributes to reducing the rate of violent crime. Inter-disciplinary research and policy groups, where for example town planners, forensic psychologist, police and community social workers work together on projects could spawn genuinely new strategies, as could recurring conferences that invite key researchers in fields that do not normally interact.

By digging deeper, performing basic research in the fields related to forensic practice, where many constructs and practices have been created ad hoc, we can hope to understand the underlying mechanism of offending behaviour. One example of this type of basic, or theory driven, research is the CAPP project with principal investigators Cooke, Hart, Logan and Michie.

To sum up, there is a need for the broader picture, “GUT”-like, inter-disciplinary theories of offending and violence, as well as more direct and in depth knowledge about violence from cognitive processing, behavioural analysis and social psychology aspects, to name but a few perspectives. A more comprehensive understanding of violent behaviour that combines knowledge from the different viewpoints of psychology, criminology, sociology, and related disciplines could further developments in forensic risk management and help us level-up to a new way of working that impacts re-offending rates, or possibly even prevents first time serious offending from happening. Knowing what influences adult offending can guide interventions in early life, and guide public policy and mental health and social services planning, in the areas of family therapy and social services support, community planning, pharmacology, special education, policing, and so on, so that less people will have their lives affected by violence in the future.
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7 REFERENCES


