Psychiatric Risk Assessment Methods
Are Violent Acts Predictable?

A Systematic Review

November 2005

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Conclusions

❑ Psychiatric risk assessment methods are more accurate than chance in predicting the propensity of male patients to commit future acts of violence in the community (Evidence Grade 2). Evidence is lacking that the methods provide reliable results for female patients. The accuracy of risk assessments may be defined as the percentage of patients who are correctly identified as subsequently committing acts of violence. The review of the literature indicates that 70–75 percent accuracy can be expected on the basis of the best research conducted thus far.

❑ Risk assessments can predict the propensity of relevant forensic (Evidence Grade 3) and general (Evidence Grade 2) psychiatric patients to commit acts of violence in the community for the next few years. However, there is insufficient scientific evidence to support more short-term risk assessments, i.e., for the days and weeks after a patient has left the clinic.

❑ No studies relevant to Swedish society have analyzed whether the reliability of the methods varies from one ethnic group to another.

❑ Both clinical evaluations and checklists of predefined instruments may be used in making risk assessments (Evidence Grade 2). The Violence Risk Appraisal Guide (VRAG) and the Historical Clinical and Risk Management Scheme (HCR-20), the two most widely used instruments, are equally valid (Evidence Grade 3). The uncertainty (inaccuracy) of forecasts based on instrumentalized assessments is 25–30 percent.

❑ Research is urgently needed in five different areas:

- Current assessments are based largely on non-controllable risk factors such as age and previous criminal behavior. Given that the purpose of assessing risk is to take effective action for the prevention of violence, more knowledge is required about risk factors that are controllable, as well as those that women face. Research on neurobiological risk factors and markers may improve forecasting tools.

- Additional studies are needed to establish whether currently available methods are able to forecast the risk for violent acts in the community over the short term (days or weeks).

- More evaluations of risk assessment methods are required in settings representative for the kinds of conditions that exist in Sweden.

- There is a great need for controlled studies on various monotherapies and combination therapies.

- Quality registers are lacking for both general and forensic psychiatry. If risk assessments are to be based on more reliable information and knowledge, such registers must be set up as quickly as possible.

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SBU Summary

As a topic of intense discussion both in Sweden and around the world, the propensity to commit violent acts is now regarded as a major, widespread health problem. Studies suggest that although mental illness constitutes a risk factor for violent crime, a mentally ill person runs only a moderate risk of being prosecuted for such an offense. While 5 percent of violent crimes are committed by people who are under treatment for psychosis, less than 1 percent of the overall population suffers from psychotic disorders.

Most countries subject both psychiatrists and other medical practitioners in the field to special obligations for assessing the danger that individual patients pose to themselves and others. The ultimate purpose of such assessments is not prediction, but prevention.

Risk assessments can be made in a number of different ways. Originally, only clinical, unstructured assessments were performed. Instruments and structured methods became increasingly popular in the 1970s. The use of a combination of instruments and structured interviews is now on the rise.

The Swedish government assigned SBU the task of working with the National Board of Health and Welfare, as well as other agencies concerned, to provide an overview of the research on the methods currently employed to assess the risk that a psychiatric patient will one day commit an act of violence.

FROM THE REPORT "PSYCHIATRIC RISK ASSESSMENT METHODS ARE VIOLENT ACTS PREDICTABLE?"

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The following questions were to be addressed:

- Does the scientific evidence suggest that a risk assessment of a psychiatric patient is more accurate than chance in predicting the likelihood that they will commit an act of violence in the community? If so, how reliable is such an assessment? What percentage of patients will be accurately assessed (positive and negative predictive value)?

- Is there scientific evidence for the superiority of a particular assessment method in predicting the risk of violence?

- Does the scientific evidence indicate that risk assessments are better suited to forensic than general psychiatry, or vice versa?

- Is there any scientific evidence that risk assessments are also reliable for the near future – i.e., the next few hours, days, weeks and months?

- Is there scientific evidence that risk assessments are equally reliable for women and men? How reliable are the methods when applied to ethnic minorities?

- Are the available studies sufficient, or is additional research called for?

The overview of the research involved a systematic review of the literature from January 1970 through March 2005. The literature was identified primarily through electronic database searches. The review was limited to adult patients under treatment or diagnosis in either general or forensic psychiatry. Acts of violence committed against caregivers or fellow patients were not included. The review looked only at studies that tested a pre-formulated assessment method and compared its reliability with that of another method or chance. Thus, studies that sought only to identify individual risk factors and indicators for violence were not included.

The quality of the included studies was classified by means of a predefined protocol. The quality and internal validity of the studies was rated, i.e., the reliability of their findings and the degree to which they addressed the questions posed above.

The conclusions of the report are based on the scientific evidence (Evidence Grade) for each question. Depending on the quality and internal validity of the study, the Evidence Grade is designated as strong (1), moderately strong (2), limited (3) or insufficient.

Strong scientific evidence (Evidence Grade 1): The conclusion is corroborated by at least two studies with high quality and internal validity, or at least one good systematic review.

Moderately strong scientific evidence (Evidence Grade 2): The conclusion is corroborated by at least one study with high quality and internal validity, as well as at least two studies with medium quality and internal validity.

Limited scientific evidence (Evidence Grade 3): The conclusion is corroborated by at least two studies with medium quality and internal validity.

Review of the Literature – Findings

The first search of the literature generated more than 4,000 articles. The review process whittled that down to 37 original studies. Twenty-seven of them concerned risk assessment of forensic psychiatric patients, i.e., people who had already committed serious offences and whose care was a result of their involvement in crime. The remaining 10 studies were on general psychiatric patients.

The entire body of material was first analyzed in view of the basic question as to whether risk assessments enable better prediction of future violent acts. The studies confirmed that such assessments were superior to chance for identifying the patients who would subsequently engage in violence.

The analysis then turned to whether the available methods were equivalent and equally effective on various categories of test subjects. It turned out that the forensic psychiatric population has been studied more, but that there is higher quality scientific evidence for general psychiatry. Only two studies, which were based on the same general psychiatric population, had high quality and internal validity. Nevertheless, there is support for the value of risk assessments in both forensic and general psychiatry.

Most forensic psychiatric patients are men, and the majority of the studies included men only. Women were part of 18 studies but were analyzed separately in only 6 of them. Neither instruments nor clinical assessments could reliably predict which women would subsequently commit violent acts in the community.

The studies tested the reliability of unstructured assessments performed by a clinician, as well as various instruments that consisted of pre-established questions and structured interviews. While the Psychopathy Checklist (PCL), one of the most widely used instruments, was designed as a diagnostic aid, it has also proven useful in predicting violent acts on the part of people with psychopathological disorders. Both VRAG and HCR-20 were specifically designed for the purpose of risk assessment.

Studies have usually compared the outcome of risk assessments with chance. Corresponding to the toss of a coin or the like, chance is an accurate predictor 50 percent of the time. The review concluded that all methods studied so far are better at identifying the risk of violent crime than is chance. There is no evidence to suggest that one particular method is superior to any other.

While risk assessments are a better bet than chance, they entail a large measure of uncertainty. The studies that generated the most favorable outcome for risk assessments accurately predicted which patients would subsequently commit violent acts 76 percent of the time. Meanwhile, the use of instruments enabled the correct identification of 69 percent of those who would not engage in violence during the follow-up period. In other words, risk assessments based on currently available methods carry an overall uncertainty of at least 25 percent.

A key issue is the amount of time that lapsed between risk assessment and follow-up. All but one study followed up at six months, and several did so at 10–12 years. However, no studies relied on short-term follow-up, i.e., the hours, days or weeks after the patient had left the clinic.

Considering that many studies, particularly those on forensic psychiatric patients, are small and frequently limited to a single clinic, more research in the area is vital. What is called for are well-designed studies with prospective follow-up, preferably randomized controlled trials that are based on a selection from large regions or an entire country and that are representative for the kind of conditions that are typical of Sweden. An additional need is for studies that are extensive enough to analyze the relatively few cases of patients who commit violent acts shortly after having left the clinic. Developing risk assessment methods more suitable for women and ethnic minorities is also a matter of urgency.

Reports *published by SBU*

SBU Reports in English

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Moderately Elevated Blood Pressure (2004), Volume 2, no 172/2

Sickness Absence – Causes, Consequences, and Physicians' Sickness Certification Practice, Scandinavian Journal of Public Health, suppl 63 (2004), 167/suppl

Radiotherapy for Cancer (2003),Volume 2, no 162/2

Treating and Preventing Obesity (2003), no 160E

Treating Alcohol and Drug Abuse (2003), no 156E

Evidence Based Nursing: Caring for Persons with Schizophrenia (1999/2001), no 4E

Chemotherapy for Cancer (2001), Volume 2, no 155/2

CABG/PTCA or Medical Therapy in Anginal Pain (1998), no 141E

Bone Density Measurement, Journal of Internal Medicine, Volume 241 Suppl 739 (1997), no 127/suppl

Critical Issues in Radiotherapy (1996), no 130E

Radiotherapy for Cancer, Volume 1, Acta Oncologica, Suppl 6 (1996), no 129/1/suppl

Radiotherapy for Cancer, Volume 2, Acta Oncologica, Suppl 7 (1996), no 129/2/suppl

Mass Screening for Prostate Cancer, International Journal of Cancer, Suppl 9 (1996), no 126/suppl

Hysterectomy – Ratings of Appropriateness... (1995), no 125E

Moderately Elevated Blood Pressure, Journal of Internal Medicine, Volume 238 Suppl 737 (1995), no 121/suppl

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