Papeles del Psicólogo, 2007. Vol. 28(3), pp. 174-186
http://www.cop.es/papeles

VIOLENCE RISK ASSESSMENT IN MENTAL DISORDERS WITH THE HCR-20

Karin Arbach y Antonio Andrés Pueyo
Universidad de Barcelona

The relationship between mental illness and violence is complex and controversial. In spite of the difficulties and prejudices, its study should not be avoided given that its consequences affect the health and well-being of people who suffer from mental disorders and their environment. Many mental health professionals who work in clinical or forensic settings are faced with this problem daily and on several occasions with the urgency of dealing with violent behaviour. Despite the overwhelming evidence obtained in the last twenty years concerning the reality of this problem, there still persists the belief that speaking about violence and mental illness has negative effects on patients because it increases their social stigmata.
Recent epidemiologic research questions these beliefs and it has facilitated the development of adequate strategies to prevent and predict these problems. Evidence indicates that mental disorder is a risk factor for future violence and that the probability of its happening can be predicted, prevented or minimized. For this aim, violence risk assessment guides such as the HCR-20 have been developed for professional applications.
The HCR-20 is a violence assessment guide specifically designed for the prediction and management of the risk of future violence in people with a mental disorder or people who have committed one or more violent crimes. In this paper, there is a brief revision of recent epidemiologic findings regarding the relationship between violence and mental disorder, a description of the HCR-20 guide also is included, emphasizing its use in clinical settings and institutions. Finally, the preliminary results of a study conducted in Spain to explore its predictive validity in a sample of people with a severe mental disorder are shown.
Keywords: *Dangerousness, mental disorders, violence risk assessment*

La relación entre enfermedad mental y violencia es compleja y sobre todo polémica. A pesar de las dificultades y prejuicios no debería obviarse su estudio ya que sus consecuencias afectan a la salud y bienestar de las personas que sufren una enfermedad mental y de su entorno. Numerosos profesionales de la salud mental que trabajan en contextos clínicos y forenses se enfrentan cotidianamente con este problema y, en muchas ocasiones, con la urgencia de intervenir frente al comportamiento violento. A pesar de las numerosas evidencias obtenidas en los últimos 20 años acerca de la realidad de este problema aún persiste el convencimiento de que hablar de violencia y enfermedad mental solamente tiene efectos negativos para los enfermos mentales porque aumenta su estigma social. Los recientes estudios epidemiológicos cuestionan estas creencias y han facilitado el desarrollo de estrategias adecuadas para prevenir e intervenir técnicamente en este problema. Las evidencias indican que la enfermedad mental es un factor de riesgo de violencia, que se puede predecir y prevenir o minimizar la probabilidad de que ocurra. Para estas tareas se han desarrollado instrumentos de aplicación profesional como el HCR-20.
El HCR-20 es una guía de valoración del riesgo de violencia diseñada específicamente para predecir y gestionar el riesgo de violencia futura en grupos de personas con enfermedad mental o en personas que han cometido uno o más delitos violentos. En este artículo se presenta una breve revisión de los recientes hallazgos epidemiológicos sobre las relaciones entre violencia y enfermedad mental, se incluye una descripción de la guía HCR-20, haciendo énfasis en su uso en contextos hospitalarios y se presentan los resultados preliminares de una investigación realizada en España para explorar su validez predictiva en un grupo de personas afectadas de trastorno mental grave.
Palabras Clave: *Peligrosidad, Trastorno mental, violencia, valoración del riesgo de violencia*

Serious violent crimes such as those which shook the University of Virginia Tech (16-04-07, U.S.A.) when a student with psychiatric antecedents perpetrated a massacre in which 33 students and professors died, or the multiple murder occurred in a Jiménez Díaz Foundation's Clinic in Madrid during 2003 committed by a medical resident affected by a severe mental disorder, reveal a reality in which violence and mental disorder seem to be related. Although these events receive enormous coverage by the media, they do not represent the most frequent and daily reality concerning the violent behaviour of mental patients. This affirmation is based not only on the infrequency of such cases, but also on the fact that it is more frequent for mental patients to be victims rather than authors of violence (Stuart, 2003), a fact not often expressed in the media.

Correspondence: Karin Arbach. *Grupo de Estudios Avanzados en Violencia. Facultad de Psicología-Universidad de Barcelona. Paseig Vall Hebron 171. 08035 Barcelona. España.*
E_Mail: K_arbach@hotmail.com

Whether correctly or incorrectly, violence and mental disorder seem to be irreversibly related in popular thinking (Appelbaum, 2006; Pescosolido, Monahan, Link, Stueve y Kikuzawa, 1999; Phelan y Link, 1998). Today, one of the central aspects of the stereotype associated with mental illness is dangerousness and it is the key to the stigma and discrimination suffered by people with mental illness (Silver, 2006; Stuart y Arboleda-Flórez, 2001). Many people attribute an elevated risk of violent behaviour to people with mental illness, perceiving them to be unpredictable and dangerous, prone to impulsive, aggressive and socially inadequate behaviour (Stuart, 2003; Eronen, Angermeyer y Schulze, 1998; Tiihonen, Hakola, Eronen, Vartiainen y Ryynänen, 1996; Rabkin, 1979).

The belief that mental disorder is the base for the dangerousness of certain delinquents and the reason for many violent acts (for example, sexual aggression, domestic or partner abuse) is widely accepted by public opinion and appears as the causal justification of numerous violent crimes. However, the use of *mental disorder* as a clarifying concept for explaining such a complex behaviour as violent actions is no more than a risky theoretical simplification, and even more so if this argument is used to guide professional action.

According to Mullen, Burgess, Wallace, Palmer and Ruschena (2000) growing attention about crime and violent behaviour in people with schizophrenia and other severe mental disorders is due to a greater awareness about these phenomena more than to an real increase in such behaviour, it means that this attention is not founded on an increase in violent behaviour in the mental disordered population.

The stereotypical image of the mentally disordered as violent seems, at least in part, to be based on recent evidence that identify a high rate of violence in a subgroup of people with mental illness (Angermeyer, Cooper y Link, 1998; Arboleda-Flórez, 1998) and is associated to the concept of dangerousness as a psychological disposition related to the risk of violent behaviour. This viewpoint is slightly obsolete to the extent that when dangerousness as an innate disposition stops being used as a predictor of future violence, that viewpoint will begin to disappear (Andres-Pueyo & Redondo, 2007).

From the opposite position, in numerous academic and assistential contexts, many social science researchers and patient advocates argue that the proposed relationship between mental disorder and violence is a false belief which is prejudiced and feeds the stigma of the mental patient as a violent subject. According to this viewpoint, the prevalence of violent behaviour committed by mental patients in the community is low and it has a rate not higher to violence prevalence in general population (Morera, Hueso y Martinez, 2001).

However, for a few decades, many mental health professionals have recognized that violence is relatively frequent in a limited group of patients. Initially emerging from day-to-day clinical work, this perception was interpreted in empirical terms when, starting in the 80s, large scale epidemiological studies and some clinical-forensic studies, found higher prevalence rates for violent behaviour in psychiatric patients than those observed in general population (Wessely, 1997).

VIOLENCE AND MENTAL ILLNESS

Interpersonal violence, whether physical, sexual or psychological, is not simply a psychopathological symptom or manifestation, but is more a reciprocal and interactive phenomenon which arises in the context of social relationships (Angermeyer, Cooper y Link, 1998). The spreading of theories which relate violence to instincts, uncontrollable impulses and inadequate social learning (Storr, 1991; Rojas Marcos, 1995; Sanmartin, 2004) tend to forget that violence is a deliberate strategy which is related to real or imaginary conflicts that people have among themselves, and for this reason attends to more complex regulating mechanisms among which the aggressor's intention of carrying out violent behaviour for a specific purpose stands out (Andrés & Redondo, 2007; Tobeña, 2001).

Of the different types of violence (see World Report on Violence and Health, WHO, 2002) in this paper we will focus on the interpersonal violence exercised by people with major mental disorders. Recent literature on violence risk assessment define violent behaviour as *the behaviour that produce a real harm, or an attempt or threat to harm one or more people, is the behaviour which objectively may cause harm to other/s (Webster, Douglas, Eaves y Hart, 1997)*. Acts which may be reasonably feasible in harming another person, threatening behaviour and aggression against property, are included in this concept. In order to be considered violent, threats must be clear and believable (Douglas, Cox y Webster, 1999; Webster, Douglas, Eaves y Hart, 1997).

A great part of the interest in the relation between

mental illness and violence rises from public safety concerns, but the topic is also relevant to the quality of life and well-being of people with mental disorders and their environment because of the consequences for those patients such as possible judicial reports, prison, family or community rejection, or the feeling of guilt (Link y Stueve, 1995). Violent behaviour by the mentally disordered people has an important impact at different levels. At a clinical level, it is frequently associated to relapses, rehospitalization, and limited results in outpatient treatment (Swanson et al., 2000), on the other hand, it generates human costs reflected in the suffering of the victims, their family and the aggressor. Economic costs are also important due to the impact this behaviour has on institutions (Hodgins, 2001). An objective assessment process of the risks associated to mental disorders is a necessary condition for reducing stigma and overcoming the social rejection of the affected individuals (Angermeyer, Cooper y Link, 1998) and definitively, for improving the quality of life of these patients.

Although the relation between mental illness and violent behaviour was debated throughout history and cultures, the controversy did not awaken a real interest in mental health researchers until the mid 60s (Arango, Calcedo Barba, Gonzalez Salvador y Calcedo Ordoñez, 1999; Eronen, Angermeyer y Schulze, 1998; Marzuk, 1996). Until that time, the scientific bibliography referring to the relation between mental disorders and violence was scarce and inconsistent (Hodgins, Mednick, Brennan, Schulsinger y Engberg, 1996), and few studies sustained the notion that people with mental disorders were no more violent and had even fewer possibilities of carrying out violent acts than the general population. In consequence, a great proportion of mental health professionals believed that relating both concepts was an artifact which fed the stigmatization of people with serious psychopathologies.

During this period, there was a reform of psychiatric practice which led to the limitation of psychiatric hospital beds and reduced hospital stays in favour of community treatment programs for people with mental illness (Grassi, Peron, Marangoni, Zanchi y Vanni, 2001; Hodgins, 2001; Raja, Azzoni y Lubich, 1997; Hodgins, Mednick, Brennan, Schulsinger y Engberg, 1996). Until that time, individuals suffering from a severe mental disorder were institutionalized for long periods of time or ever during their all life, but after psychiatric reform treatments which included brief hospitalizations and relatively flexible criteria for hospital release were generalized.

While a great number of psychiatric hospitals began to "close their doors", prison admissions for subjects with mental disorders were increasing (Wallace, Mullen y Burgess, 2004; Hodgins, 1998; Hodgins, Mednick, Brennan, Schulsinger y Engberg, 1996). When the penitentiary system found itself "overpopulated", delinquents with mental disorders began to be referred to the health system, now reduced to a few beds in general hospitals (Rabkin, 1979). This process was called the "criminalization" of mental patients, and partly explains the increase of criminal or violent histories in psychiatric patients files (Skeem et al., 2004). This factor favoured the stereotypical image of people with serious mental disorders and the negative consequences associated to the stigma, such as withdrawal, segregation or rejection (Swanson et al., 2000; Arango, Calcedo Barba, Gonzalez Salvador y Calcedo Ordoñez, 1999; Marzuk, 1996; Swanson, Borum, Swartz y Monahan, 1996).

As has already been pointed out, a great part of psychological and criminological orthodoxy sustained (and still does in the present) the inexistence of the relation between mental illness and violence. It is difficult to think how this belief could have been maintained in spite of the evidence that was being found and that sustained a different image (Maden, 2007). The most surprising paradox is that among the professionals working daily in the care of these patients or the relatives living with them, the idea that they are potentially more violent than those not affected by mental disorders is an usual consideration and this opinion is probably founded on the fact that they are the most frequent victims of the violence carried out by the mentally disordered.

After a period in which experts appeared to agree with the idea that violence among inpatients is not a problem different from the rest of the population, the belief was revised for several main reasons: the limitations of the studies on which it was based, the consequences of "deinstitutionalization", new outpatient treatments for serious mental disorders, the improvement of the patients social integration, the spread of drug abuse and other criminological elements and the forensic science advances in crime area.

AVAILABLE EVIDENCE

After the Second World War, a series of epidemiological studies interested in clarifying the controversial question relative to the existence or not of a relation between

mental illness and violent behaviour was carried out. Many of these had as an additional objective the identification of risk factors which could influence violent behaviour in this population with the purpose of preventing it. In the last forty years, studies with different designs and consistent results were performed which demonstrate that the prevalence of violent behaviour in people affected by serious mental illness is greater than in general population (Wessely, 1997), and that this rate increases notably in the presence of drug abuse coexistence (Walsh, Buchanan y Fahy, 2002).

The evidence that justifies the existence of a proven relationship between mental disorder and violence proceeds from: a) studies on the prevalence of violence in people with mental illness, b) studies on the prevalence of mental disorders in people who have committed violent acts and are or have been in contact with the criminal justice system and c) community epidemiological studies designed specifically to discover the joint prevalence of mental disorders and violent behaviour (Monahan, 1992). Following, the main results of some of the studies which stand out for their rigour and methodological quality are described.

In 1981, J. Ortmann examined the criminal registers and psychiatric admissions of a cohort of 11,540 men born in Copenhagen in 1953 and who still lived in Denmark in 1975. He found that 43.5% of men treated for mental disorders had one or more sentences (83% of them had a comorbid substance abuse disorder) compared to 34.8% of men without mental disorder (Ortmann, 1981 in Hodgins, 1992). A decade later, S. Hodgins (1992) explored psychiatric and police registers of a cohort composed of 15,117 people born in Stockholm in 1953 and who still lived in Sweden at 30 years old. The men who had developed a serious mental disorder showed a relative risk 2.5 times greater for all crimes and 4 times greater for violent crimes compared to the men without mental disorders. In the men with substance or drug abuse or dependence, the risk was 20 times greater than in those without mental disorders. Also, in women with serious mental disorders, the risk was 5 times greater for common crimes and 27 times greater for violent crimes, compared to women without disorders. It is interesting to point out that it was not found that the risk of developing a comorbid substance abuse disorder varied significantly according to diagnostic categories (schizophrenia, serious affective disorder, paranoid states, and other psychosis) (Hodgins, 1992).

In another study directed by S. Hodgins in Denmark (Hodgins, Mednick, Brennan, Schulsinger y Engberg, 1996) psychiatric admission registers and violent crime sentences were obtained for a cohort born between 1944 and 1947 and who lived in the country in 1990. The sample was composed of 158,799 women and 165,602 men. The prevalence, type and frequency of sentences among those who had been hospitalized for different psychiatric disorders (6.6% of the total sample, of these 2.2% were hospitalized for a serious mental disorder) and people who had never been hospitalized, were compared. In the women, all the diagnostic groups had a crime risk between 3 and 10 times greater compared to those who had no mental disorders. In the men, the risk for a criminal sentence was also increased between 2 and 7 times in all diagnostic groups (Brennan y Alden, 2006; Hodgins, Mednick, Brennan, Schulsinger y Engberg, 1996).

In a further analysis of this data, Brennan, Mednick & Hodgins (2000) found that even after controlling demographic factors, substance abuse and personality disorders, individuals with a mental disorder were more likely to have an arrest for violent crime compared to individuals who had never been hospitalized, although this relationship decreased after controlling for those variables. Schizophrenia, paranoid type especially, was the only mental disorder associated to an increased risk of violent behaviour in both sexes (Brennan, Mednick y Hodgins, 2000). Although this finding may suggest that paranoid symptoms play a role in the risk for violence, it is important to point out that the bibliography on this subject is not totally conclusive (Brennan y Alden, 2006).

In Finland, Tiihonen, Isohanni, Räsänen, Koiranen & Moring (1997) followed during 26 years a cohort of 12.058 individuals born in 1966. In general terms, the authors concluded that various specific mental disorders, such as schizophrenia and affective disorders with psychotic symptoms were associated to an elevated risk for violent criminal behaviour. The risk of violent crime in men with schizophrenia was 7 times greater than in men without mental disorders, even after controlling socio-economic status and substance abuse. They also noted that more than half of the people with schizophrenia had problems with alcohol and that violence rates increased from 7.5% in patients with schizophrenia to 36.4% in cases in which schizophrenia coexisted with substance abuse.

With data obtained directly from surveys of a sample of 10,000 people in communities of five cities in the U.S.A., Swanson, Holzer, Ganju and Jono (1990) found that 2% of the population without mental illness *versus* 12% of those with schizophrenia admitted to have antecedents of violence in the past year. The study revealed that: a) the prevalence of violence was 5 times greater in those who fulfilled criteria for a diagnosis in axis I of DSM-III than in those who had no diagnosis, comorbid alcohol abuse duplicated the likely of violence in those with mental disorders, and illicit drugs abuse tripled it, b) the prevalence of violence in those who fulfilled criteria for schizophrenia, manic depression, major depressive disorder or bipolar disorder were notably similar (between 11 and 12.7%) and finally, c) the prevalence in those with a diagnosis of alcoholism or drug abuse was between 12 and 16 times greater than in people with no diagnosis. The best demographic and clinical predictors of violence were being male, young, from a lower social class, with a serious mental disorder and substance abuse.

Another relevant study is that of Link, Andrews and Cullen (1992) conducted in New York. Their data proceed from a survey of 753 people and the sample was composed by psychiatric patients, outpatients and inpatients, and community residents. Fourteen percent of the total sample self-reported having been arrested at some point against 8.6% who were on record in official registers. Psychiatric patients showed higher rates of violent behaviour both in official registers and in self-reports when compared to community residents who had never received psychiatric treatment. In patients, the risk of violence was 2 to 3 times greater than in the community sample which had never been treated, and there were no significant differences between the former. Consistent with the results of Swanson, Holzer, Ganju and Jono (1990), being male, young, with a lower educational level and coming from neighbourhoods with high crime potential, was significantly associated to the risk of violence. However, even when an extensive list of socio-demographic and personal factors, including the use of alcohol or drugs, had been controlled, the significant differences in the rate of violent behaviour between patients and residents of the community systematically remained, and only disappeared when the current psychotic symptomatology was controlled regardless of the group to which they belonged. The psychotic symptoms scale was the only variable which explained the difference between violent groups and non-violent groups, even among residents who had never been treated. The fact that psychotic symptoms explain such differences does not mean that these symptoms are a robust cause of violence in the community, nor does it allow for the conclusion that the symptoms *per se* cause violence; in fact, the difference between groups, although significant, is modest (Link y Stueve, 1994; Link, Andrews y Cullen, 1992).

The studies previously analysed suggest that people who actively experience symptoms of a severe mental disorder show violent behaviour at rates several times higher than members of general population without mental disorder, and that this difference persists even when a wide range of social and demographic factors are taken into account.

Studies with imprisoned population also support the idea of a relation between mental illness and violence. Although prisons and incarcerated people vary enormously between countries, it is possible to extract from the results the idea that psychiatric morbidity, including schizophrenia, is greater in the imprisoned population than in general population, and that drug and alcohol abuse disorders are one of the biggest problems that must be faced by professionals who work with this population (e.g. Andersen, 2004; Hodgins, 2001; Stuart y Arboleda-Flórez, 2001; Wallace et al., 1998; Eronen, Tiihonen y Hakola, 1996; Côté y Hodgins, 1992; Hodgins, 1992; Teplin, 1990). From the global results of an extensive revision of studies conducted in prisons, it can be concluded that compared to the general population of a similar age, subjects in penitentiary institutions have between two and four times more risk of suffering from a psychotic or a major depressive disorder, and almost 10 times more probabilities to have an antisocial personality disorder (Fazel y Danesh, 2002).

The findings presented, along with extensive evidence currently available, permits the conclusion that psychiatric patients, hospitalized or in the community, show greater rates of violent behaviour than people without mental disorders, and that people who are or have been in prison are at greater risk than the general population of suffering from a severe mental disorder. However, compared to the magnitude of the risk of violence associated with substance abuse disorders or personality disorders, the risk associated to severe mental disorders is moderate and comparable to socio-demographic factors such as being young, male and with a low educational level, and moreover it seems to be linked to particular symptomatic constellations.

THE MACARTHUR VIOLENCE RISK ASSESSMENT STUDY

One of the most important studies about violence risk in psychiatric population is the MacArthur Violence Risk Assessment Study carried out in the United States (Monahan et al., 2001). John Monahan summarized the empirical bibliography till the date of its publication and it is an excellent source of reference for information on the main violence risk factors in this population (Monahan et al., 2000; Monahan y Steadman, 1994). It is a prospective and multicentric large-scale research which constitutes the most sophisticated initiative to unravel the complex interrelations among violence risk factors in the psychiatric population (Skeem y Mulvey, 2001).

The Project had a budget of more than 18 million dollars and a great part of these resources were dedicated to improving the violent behaviour assessment protocol and rigorously obtain the maximum amount of information relative to this problem in association with mental disorders. For this purpose, a cohort of 1,136 psychiatric patients of both sexes with ages between 18 and 40 years olds, independently of whether or not they had violent antecedents was followed. The patients were released from three hospitals in the United States and have diagnosis of affective disorder, thought disorder, substance abuse or personality disorder. While they were hospitalized, they were assessed on more than 130 potential violence risk factors, the main criteria to be studied and predicted were community violence. Certain antecedents and biographical data were also studied previous to the patients´ release.

Once in the community, each participant was interviewed every 10 weeks. The purpose of these continual interviews was to obtain detailed information about the violent behaviour carried out by subjects released by means of a self-report. At the same time, this information was completed with data facilitated by observers who frequently treated or knew the subject well. As a third source of data, official police and/or judicial information was included.

Global results indicate that 61% of patients behaved violently in the community during the first year after release. Of these, 28% carried out serious violent behaviour, although rates varied in function of the data source used and the type of violence committed. For example, the prevalence of serious violence throughout one year was 4.5% using official registers of arrests or rehospitalization, 23.7% adding self-reports about non-registered acts and 17.5% adding data obtained from collateral informers not considered in official registers, nor self-reported. In other words, the final prevalence for serious violence was 6 times higher that the estimated only by official registers (Appelbaum, Clark Robins y Monahan, 2000; Steadman et al., 1998).

Taking into account the different diagnosis of patients, the results indicated that 9% of patients with schizophrenia were violent in the first 20 weeks after release, 19% of those who received a diagnosis of depression, 15% of those who had bipolar disorder, 17.2% of those with other psychotic disorders, 29% of those who had substance abuse disorders and 25% of those who had personality disorders (Walsh, Buchanan y Fahy, 2002; Monahan et al., 2000). Nevertheless, the diagnosis of severe mental disorder was associated to a low level of violence. In contrast, other variables such as the severity and frequency of physical abuse in childhood, the diagnosis of comorbid substance abuse, violent thoughts, a suspicious attitude toward others and auditive hallucinations of internal loss of control are strongly related to violence. Finally, the most robust predictors of violence in the community were the psychopathy measured by the PCL:SV (Hart, Cox y Hare, 1995), the diagnosis of antisocial personality disorder, the abuse of alcohol or drugs and the score on an anger assessment scale (Monahan et al., 2001).

From the MacArthur study, diverse specific studies have been derived (Edens, Skeem y Douglas, 2006; Skeem et al., 2004; Skeem, Mulvey y Grisso, 2003; Monahan, 2002; Rice, Harris y Quinsey, 2002; Monahan et al., 2001; Skeem y Mulvey, 2001; Appelbaum, Clark Robins y Monahan, 2000; Dolan y Doyle, 2000; Steadman et al., 2000; Steadman et al., 1998) and the reader can find in them detailed information about the risk factors explored and their association to violence. Their results are convergent in great measure with other studies and have highlighted other factors, apart from those already mentioned, consistently associated to violence in the mentally disordered such as age, sex, personality, previous history of violence, drug abuse and cultural influences. Some of the most relevant findings for this article are presented in table 1.

RISK ASSESSMENT USING THE HCR-20

In spite of stemming from disciplines in the judicial-forensic field dangerousness has become an important criteria in the taking of many decisions related to the management of civil and forensic psychiatric patient care.

Due to the role that mental health professionals play in the identification of dangerousness and the relevance of violent behaviour problems in patients affected by mental illness, it is more urgent every day to incorporate violence risk assessment and management strategies which are empirically founded on clinical decision making (Webster, et al. 1997; Maden, 2007).

In agreement with what is called the **structured clinical model** (Douglas et al, 2003) clinicians can incorporate schemes for the assessment of violence risk into their daily tasks to: a) structure the assessments that are requested of them, b) base them on factors which have demonstrated an empirical link to violence, c) communicate clear and pertinent conclusions, and d) reasonably guide decision-making. The HCR-20 *(Webster, Douglas, Eaves y Hart, 1997)* is a guide for violence risk assessment in mental patients and violent prisoners which represents the current dominant tendency of this model and its main objective is to reliably and precisely identify patients with low, medium or high risk of violence.

TABLE 1
A SELECTION OF RESULTS FROM THE MACARTHUR STUDY (EXTRACTS OF MADEN, 2007)

1. In people with mental illness, the prevalence of moderate to severe violent incidents throughout the year is about 30%. In inpatients this level of prevalence generally accumulates in the first days of hospitalization when the symptomatology is more acute decreasing rapidly to levels as low as 13.5% within a few weeks and 6.9% at a later time (which appears to be more stable). Almost 30% of violent patients show delirious pathology at the moment of aggression. In these cases the decrease is less and goes from 17% to 12% respectively. Less than 10% of violent incidents occurred when the patients had a psychotic episode, with most of the violence happening at home and the victims being relatives or friends.

2. Drug consumption and abuse is more important than the mental illness as a cause of violence. Drug abuse increases the risk of violence both in patients affected by a mental disorder and people without a disorder, but as the consumption of drugs is so frequent by people with mental disorders, it seems that violence is inherent to the disorder, but this is a false perception (Steadman et al., 1998).

3. Assessment using the PCL-SV is useful for predicting the risk of violence, in fact it is one of the best predictors in both "civil" psychiatric and the general population, for which its consideration in clinical practice is recommended and not only in forensic contexts. When this measure is combined with that of drug abuse its predictive capacity increases considerably.

4. The violent episodes executed by people with a mental disorder in the community have the same motivations and triggers than the rest of community members and must be understood in the same terms and obeying the same rules. This finding is not applicable to inpatients.

Description and applications of the HCR-20

This instrument assesses the risk of physical violence, and was developed for application in the field of civil, forensic or penitentiary psychiatry. It works as a guide for making probabilistic judgements about the risk of future violence. It facilitates the realization of a personalized assessment directed to the preventive case management through the consideration of 20 risk factors selected because their association with violence in the scientific and professional bibliography, and also through consultation with forensic mental health professionals (Douglas, Yeomans y Boer, 2005).

It contains three subscales that gather three types of violence risk factors: past, present and future (see table 2). The historical subscale (H) consists of 10 items of static character which gathers information typically documented in official registers referring to the patient's biography. The psychopathy measured by the PCL:SV (Hart et al. 1997) and established as a strong violence correlate, is part of this subscale H. Clinical subscale (C) includes five items related to the current psychological functioning of the assessed. Risk subscale (R) is composed of five items which reflect future situational risk factors (Douglas y Webster, 1999). IN or OUT must be codified according to whether the context which the prediction refers to is institutional or communitary. Clinical and risk management items attempt to help in the formulation of risk management plans because they are sensitive to change (Douglas, Yeomans y Boer, 2005). In addition, the inclusion of dynamic factors makes the instrument adequate for carrying out repeated assessments depending on changes in circumstances (Douglas y Webster, 1999), the changing and situational character of violence risk is basic in this work perspective.

The clinicians must establish the violence risk level (low, moderate or high) in each case based on the risk factors structured assessment, the importance that it is esteemed for them in the case in question and the degree of intervention considered adequate to prevent the violence. For the administration of this scale, several data sources are used which can guarantee reliable information (records, clinical case histories and interviews). The information obtained from clinical files or available documentation is used before to interview the patient for providing a scheme to be completed. The administration of the HCR-20 requires specific training, as well as professional judgement and capacity and a certain familiarity with the bibliography on the nature and prediction of violence.

As will be outlined later and after a generalization on the use of this guide in international and professional contexts, diverse investigations have shown an interest in knowing the psychometric properties of the HCR-20 as well as its effectiveness. The great majority of these investigations have been developed in the United States, Canada, the Netherlands and Scandinavian countries. However, the analysis of the Spanish version of this instrument is still scarce due to its recent incorporation in the professional field. There are some exceptions such as the studies of J. Folino in Argentina and J. Virués Ortega in Spain, in both cases with forensic psychiatric population. In Spain, the HCR-20 has been adapted by the Group of Violence Advanced Studies of the University of Barcelona (Hilterman y Andrés Pueyo, 2005). This is the authorized Spanish version and it is the one which has been used in the study which will be commented on later.

In both, retrospective and prospective revised studies, the HCR-20 has shown good predictive validity (por ej. Dernevik, Grann y Johansson, 2002; Doyle, Dolan y McGovern, 2002; Belfrage, Fransson y Strand, 2000; Dolan y Doyle, 2000; Grann, Belfrage y Tengström, 2000; Mossman, 2000; Douglas, Ogloff, Nicholls y Grant, 1999; Douglas y Webster, 1999; Strand, Belfrage, Fransson y Levander, 1999; Belfrage, 1998), we can consider that long term predictions using HCR-20 are accuracy enough (Douglas, Ogloff, Nicholls y Grant, 1999), the inter-judges reliability has also proven to be acceptable (e.g. Douglas, Ogloff y Hart, 2003; Dernevik, Grann y Johansson, 2002; Douglas, 2001; Douglas y Webster, 1999; Belfrage, 1998).

A study on the HCR-20 predictive validity

The authors of this article carried out a prospective study in order to know the HCR-20 predictive validity on violent behaviour in a sample of 114 psychiatric patients who, after obtaining the corresponding authorization from the hospital centre, were followed for one year during their hospitalization (Arbach, Andres Pueyo, García-Forero, Pomarol Clotet y Gomar, 2007; Arbach y Andres Pueyo, 2006b). In this period, 40% of the subjects manifested verbal threats, 29% committed an aggressive act against objects, 11.4% committed self-harm and 40% were violent towards other people. Considering only the physical violence towards others, of the 36 patients who were violent in the first quarter of monitoring, 73.5% relapsed in the second, and 60.6% did so in the last quarter of the follow-up. This finding justifies the idea that, as in the community, during hospitalization violent behaviour is concentrated in a small, although critical, subgroup of people, and a great proportion of patients who manifest violent behaviour at certain time will tend to relapse in the future. With this knowledge, it is possible to advance preventive measures in order to reduce the risk of future violent behaviour.

The HCR-20 total score and the clinical subscale score showed correlation rates of r=±0.5 with short-term violence, and of r=±0.4 with longer-term violence. Mean scores especially in subscales C, R and in the HCR-20 total score increased 3 to 4 times the probability of being violent during the whole follow-up period. To a lesser degree, subscale H did so, as mean scores in this measure increased short-term future violence risk by approximately two times, but its effect on risk decreased over time to non-significant levels. In resume, the results of our study show that a high score for these risk measures predicts the occurrence of violence throughout the year, although the greatest accuracy seems to be obtained at short-term (Arbach y Andres Pueyo, 2006a).

Throughout the year, the HCR-20 reached a percentage of correctly classified subjects which varied between 75% and 77.5%, which allows us to suggest that its

TABLE 2
ITEMS ASSESSED BY THE HCR-20

HISTORIC ITEMS	
H1	Previous violence
H2	Age at first violent incident
H3	Unstable partner relations
H4	Job-related problems
H5	Substance-abuse problems
H6	Severe mental disorder
H7	Psychopathy
H8	Juvenile misadjustment
H9	Personality disorder
H10	Supervision noncompliance
CLINICAL ITEMS	
C1	Lack of insight
C2	Negative attitudes
C3	Current presence of severe mental disorder symptoms
C4	Impulsivity
C5	No response to treatment
RISK MANAGEMENT ÍTEMS	
R1	Lack of feasible future plans
R2	Exposition to destabilizing factors
R3	Lack of social support
R4	Noncompliance with prescribed treatment
R5	Stress

classification power is moderate to high and notably improves predictions made at random. As an additional conclusion, the study demonstrated that the Spanish adaptation of the HCR-20 behaves just as efficiently as the English, Swedish or French versions in similar populations.

RISK MANAGEMENT

A negative consequence of the lack of importance that clinicians give to violent behaviour in patients (except when it is very evident and frequent) is that they rarely explore it in their anamneses nor do they consider appropriate its inclusion in case files. This practice, which is quite widespread, is inadequate for the prevention and prediction of future violence given that, as we have mentioned, the prediction of future behaviour is based, as a minimum, on the knowledge of previous history. It is important to point out that among the static risk factors for future violence, which generally have a historical nature, the most relevant is past violence (e.g. Waldheter, Jones, Johnson y Penn, 2005; Walsh et al., 2004).

We believe that reducing violence risk assessment to a process in which a patient or inpatient is labelled by categories of high or low risk is a simplification which eliminates details of enormous importance to the task and, mainly, eludes its practical application focussed on prevention. From this simplistic perspective, if we classify an individual with a high risk of future violence and he/she commits an act of violence (e.g. physically attacks his/her partner) a few months after having been assessed, we say that we were right in the classification and prognosis. If, on the contrary, we decide that the subject has a low risk of committing an aggression in the future and later we see that, in effect, he/she has not committed a violent act in the past 18 months, and then we also consider ourselves right in the classification. But in the field of social and human sciences, as in the majority of sciences, predictions are not always correct. On many occasions mistakes or errors in classification and prognosis are made. A number of intervening factors turn all predictions into a relatively fortuitous act in which the probability of being right or wrong determines the efficacy of the predictions.

Although many of the violent acts committed by mentally disordered people seem to be unavoidable, especially when they are associated to chronic pathologies of difficult treatment, the probability that new acts of violence occur can be minimized by means of an individualized prevention policy derived from an adequate management of risk factors. Individualized management begins with a complete risk assessment, followed by the recommendations that we have presented in this article, and by a risk management plan design which must be reconsidered when there are changes in the patient's clinical, personal or social situation. Violence risk assessment in people with a mental disorder or in those who have committed violent acts, does not pretend simply to be limited to a forensic prediction of future violence, but must be the first step in the real prevention of future violence by the identification of risk factors which having been present in a person's history, could be present in the different scenarios where that person will most probably live his/her future life.

CONCLUSIONS

Epidemiological studies carried out in distinct countries by different research groups has demonstrated that there is a relationship between violence and mental disorder in which the latter clearly plays a role as risk factor for the former. However, it is necessary to remember that the majority of people affected by a mental disorder are not violent and that the majority of violent events which occur in our society are committed by people without mental disorders. Although the risk that anyone could become the victim of an attack perpetrated by a mentally ill person is very low, this risk increases for people who know them, deal with them or are related to them, generally through family or care-giving ties.

It is recommendable to include a violence risk assessment in routine treatment of the mentally ill, as the occurrence of this type of behaviour is an important part of the many difficulties and complications that appear in the patients social lives and their environment.

The HCR-20, which we have briefly presented here, is a violence risk assessment guide useful for being administered in contexts of inpatient and outpatient care, both in clinical fields and in forensic or penitentiary fields. It is good for assessing the risk of violent incidents in the future and for managing the factors which increase or reduce it in order to prevent it from happening. The Spanish adaptation of the instrument behaves in an efficient way and is comparable to the original Canadian one and to others applied in the United Kingdom, the Netherlands or Scandinavian countries.

Finally, although the risk for the occurrence of violence by the people with mental disorder is low or moderate,

this does not mean that it does not exist (Maden, 2007) or that nothing can be done about it. Professionals working in mental health care should take interest in violence committed by their patients, not because it is very frequent or common, but because it refers to the efficacy of their therapeutic activity and, above all, because it can be prevented, and in this way it can be reduced the stigma associated to this condition, favoured the efforts for the social integration of these people and, finally, improved the quality of their lives.

Acknowledgements: This work has been carried out within the framework of the development of research projects SEC2001-3821-C05-01/PSCE and SEJ2005-09170-C04-01/PSIC of the Ministry of Education and Science, Government of Spain.

REFERENCES

Andersen, H. S. (2004). Mental health in prison populations. A review - with special emphasis on a study of Danish prisoners on remand *Acta Psychiatrica Scandinavica, 110*(Suppl. 424), 5-59.

Andres Pueyo, A. y Redondo, S.(2007). Predicción de la violencia: entre la peligrosidad y la valoración del riesgo de violencia. Dangerousness and violence risk assessment) *Papeles del Psicologo*, 28, (en este mismo número)

Angermeyer, M. C., Cooper, B. y Link, B. (1998). Mental disorder and violence: results of epidemiological studies in the era of de-institutionalization. *Soc Psychiatry Psychiatr Epidemiol, 33*(Suppl), 1-6.

Appelbaum, P. S. (2006). Violence and mental disorders: data and public policy. *American Journal of Psychiatry, 163*(8), 1319-1321.

Appelbaum, P. S., Clark Robins, P. y Monahan, J. (2000). Violence and Delusions: Data from the MacArthur Violence Risk Assessment Study. *American Journal of Psychiatry, 157*(4), 566-572.

Arango, C., Calcedo Barba, A., Gonzalez Salvador, T. y Calcedo Ordoñez, A. (1999). Violence in Inpatients with Schizophrenia: a Prsopective Study. *Schizophrenia Bulletin, 25*(3), 493-503.

Arbach, K. y Andres Pueyo, A. (2006a). *Predictive validity of Structured Clinical Judgment tools in violence risk assessment in a civil psychiatric sample.* Communication presented at the 26th International Congress of Applied Psychology. Atenas, Grecia. 16-21 Julio.

Arbach, K. y Andres Pueyo, A. (2006b). *The validity of the HCR-20 and PCL:SV in predicting inpatient violence in a civil psychiatric sample: a 9 month follow-up study.* Communication presented at the International Association of Forensic Mental Health Services 6th Annual Conference, Amsterdam (Países Bajos)

Arbach, K., Andres Pueyo, A., García-Forero, C., Pomarol Clotet, E. and Gomar, J. (2007). *Frequency and severity changes of violent behavior in psychiatric inpatients*. Communication presented at the 5th European Congress on Violence in Clinical Psychiatry. Amsterdam, Países Bajos. 25-27 de Octubre.

Arboleda-Flórez, J. (1998). Mental illness and violence: an epidemiological appraisal of the evidence. *Canadian Journal of Psychiatry, 43*, 989-996.

Belfrage, H. (1998). Implementing the HCR-20 scheme for risk assessment in a forensic psychiatric hospital: integrating research and clinical practice. *Journal of Forensic Psychiatry, 9*(2), 328-338.

Belfrage, H., Fransson, G. y Strand, S. (2000). Prediction of violence using the HCR-20 a prospective study in two maximum-security correctional institutions. *The Journal of Forensic Psychiatry, 11*(1), 167-175.

Brennan, P. A. y Alden, A. (2006). Schizophrenia and violence: the overlap. En A. Raine (Ed.), *Crime and Schizophrenia: Causes and Cures* (pp. 15-27): Nova Science Publishers, Inc.

Brennan, P. A., Mednick, S. A. y Hodgins, S. (2000). Major mental disorders and criminal violence in a Danish birth cohort. *Archives of General Psychiatry, 57*, 494-500.

Côté, G. y Hodgins, S. (1992). The prevalence of major mental disorders among homicide offenders. *International Journal of Law and Psychiatry, 15*, 88-99.

Dernevik, M., Grann, M. y Johansson, S. (2002). Violent behaviour in forensic psychiatric patients: risk assessment and different risk-management levels using the HCR-20. *Psychology, Crime and Law, 8*(1), 93-111.

Dolan, M. y Doyle, M. (2000). Violence risk prediction. *British Journal of Psychiatry, 177*, 303-311.

Douglas, K. S. (2001). HCR-20 violence risk assessment scheme: Overview and annotated bibliography [on line]. de www.sfu.ca/psychology/groups/faculty/hart.violink

Douglas, K. S., Cox, D. N. y Webster, C. D. (1999). Violence risk assessment: science and practice. *Legal*

and Criminological Psychology, 4, 149-184.

Douglas, K. S., Ogloff, J. R. P. y Hart, S. D. (2003). Evaluation of a model of violence risk assessment among forensic psychiatric patients. *Psychiatric Services, 54*(10), 1372-1379.

Douglas, K. S., Ogloff, J. R. P., Nicholls, T. L. y Grant, I. (1999). Assessing Risk for Violence among Psychiatric Patients: the HCR-20 Violence Risk Assessment Scheme and the Psychopathy Checklist: Screening Version. *Journal of Consulting and Clinical Psychology, 67*(6), 917-930.

Douglas, K. S. y Webster, C. D. (1999). The HCR-20 violence risk assessment scheme: concurrent validity in a sample of incarcerated offenders. *Criminal Justice and Behavior, 26*(1), 3-19.

Douglas, K. S., Yeomans, M. y Boer, D. P. (2005). Comparative validity analysis of multiple measures of violence risk in a sample of criminal offenders. *Criminal Justice and Behavior, 32*(5), 479-510.

Doyle, M., Dolan, M. y McGovern, J. (2002). The validity of North American risk assessment tools in predicting in-patients violent behavior in England. *Legal and Criminological Psychology, 7*, 141-154.

Edens, J. F., Skeem, J. L. y Douglas, K. S. (2006). Incremental validity analyses of the Violence Risk Appraisal Guide and the Psychopathy Cheklist: Screening Version in a civil psychiatric sample. *Assessment, 13*(3), 368-374.

Eronen, M., Angermeyer, M. C. y Schulze, B. (1998). The psychiatric epidemiology of violent behavior. *Soc Psychiatry Psychiatr Epidemiol, 33*(Suppl), 13-23.

Eronen, M., Tiihonen, J. y Hakola, P. (1996). Schizophrenia and homicidal behavior. *Schizophrenia Bulletin, 22*(1), 83-89.

Fazel, S. y Danesh, J. (2002). Serious mental disorder in 23000 prisoners: a systematic review of 26 surveys. *The Lancet, 359*, 545-550.

Grann, M., Belfrage, H. y Tengström, A. (2000). Actuarial assessment of risk for violence: predictive validity of the VRAG and the historical part of the HCR-20. *Criminal Justice and Behavior, 27*, 97-114.

Grassi, L., Peron, L., Marangoni, C., Zanchi, P. y Vanni, A. (2001). Characteristics of violent behavior in acute psychiatric in-patients: a 5 year Italian study. *Acta Psychiatrica Scandinavica, 104*, 273-279.

Hart, S. D., Cox, N. y Hare, D. (1995). *The Hare Psychopathy Checklist: Screening Version (PCL:SV)*. Toronto: Multi Health System Inc.

Hilterman, E. y Andrés Pueyo, A. (2005). *HCR-20. Guía para la valoración de comportamientos violentos.(The HCR-20.Violence risk assessment guide)* Barcelona: Universitat de Barcelona.

Hodgins, S. (1992). Mental disorder, intellectual deficiency, and crime. *Archives of General Psychiatry, 49*, 476-483.

Hodgins, S. (1998). Epidemiological investigations of the association between major mental disorder and crime: methodological limitations and validity of the conclusions. *Soc Psychiatry Psychiatr Epidemiol, 33*(Suppl), 29-37.

Hodgins, S. (2001). The major mental disorders and crime: Stop debating and start treating and preventing. *Journal of Law and Psychiatry, 24*, 427-446.

Hodgins, S., Mednick, S., Brennan, P., Schulsinger, F. y Engberg, M. (1996). Mental disorder and crime. Evidence from a Danish birth cohort. *Archives of General Psychiatry, 53*, 489-496.

Link, B., Andrews, H. y Cullen, F. T. (1992). The violent and illegal behavior of mental patients reconsidered. *American Sociological Review, 57*, 275-292.

Link, B. y Stueve, A. (1994). Psychotic symptoms and the violent/illegal behavior of mental patients compared to community controls. En J. Monahan y H. J. Steadman (Eds.), *Violence and mental disorder* (pp. 137-159). Chicago: University of Chicago Press.

Link, B. y Stueve, A. (1995). Evidence bearing on mental illness as a possible cause of violent behavior. *Epidemiological Review, 17*(1), 172-181.

Maden, A. (2007). *Treating violence: a guide to risk management in mental health*. Oxford, Oxford Univ. Press.

Marzuk, P. M. (1996). Violence, Crime, and Mental Illness. How Strong a Link? *Archives of General Psychiatry, 53*(June), 481-486.

Monahan, J. (1992). Mental disorder and violent behavior. *American Psychologist, 47*(4), 511-521.

Monahan, J. (2002). The MacArthur studies of violence risk. *Criminal Behavior and Mental Health, 12*, S67-S72.

Monahan, J. y Steadman, H. J. (Eds.). (1994). *Violence and mental disorder*. Chicago: University of Chicago Press.

Monahan, J., Steadman, H. J., Appelbaum, P. S., Robbins, P. C., Mulvey, E. P., Silver, E., et al. (2000). Developing a Clinically Useful Actuarial Tool for Assessing Violence Risk. *British Journal of Psychiatry, 176*, 312-319.

Monahan, J., Steadman, H. J., Silver, E., Appelbaum, P. S., Clark Robins, P., Mulvey, E. P., et al. (2001). *Rethinking risk assessment. The MacArthur Study of Mental Disoder and Violence*. New York, USA: Oxford University Press.

Morera, B., Hueso, V. y Martinez, L. (2001). Conductas violentas y enfermedad mental: predicción y abordaje en pacientes hospitalizados.(Violent behaviour and mental illness: prediction and treament approach in inpatients) *Archivos de Psiquiatría, 64*(2), 137-154.

Mossman, D. (2000). Book Review: Evaluating Violence Risk "By the Book": A Review of HCR-20, Version 2 and The Manual for the Sexual Violence Risk-20. *Behavioral Sciences and the Law, 18*, 781-789.

Mullen, P., Burgess, P., Wallace, C., Palmer, S. y Ruschena, D. (2000). Community care and criminal offending in schizophrenia. *The Lancet, 355*, 614-617.

OMS. (2002). *World Report on Violence and Health: Summary*. Génova: World Health Organization.

Pescosolido, B., Monahan, J., Link, B., Stueve, A. y Kikuzawa, S. (1999). The public's view of the competence, dangerousness, and need for legal coercion of persons with mental health problems. *American Journal of Public Health, 89*(9), 1339-1345.

Phelan, J. C. y Link, B. (1998). The growing belief that people with mental illnesses are violent: the role of the dangerousness criterion for civil commitment. *Soc Psychiatry Psychiatr Epidemiol, 33*(Suppl), 7-12.

Rabkin, J. G. (1979). Criminal behavior of discharged mental patients: a critical appraisal of the research. *Psychological Bulletin, 86*(1), 1-27.

Raja, M., Azzoni, A. y Lubich, L. (1997). Aggresive and violent behavior in a population of psychiatric inpatients. *Soc Psychiatry Psychiatr Epidemiol, 32*, 428-434.

Rice, M. E., Harris, G. T. y Quinsey, V. L. (2002). The appraisal of violence risk. *Current Opinion in Psychiatry, 15*, 589-593.

Rojas Marcos,L. (1995). *Las semillas de la violencia.*(*The seeds for violence)* Barcelona. Espasa Calpe

Sanmartin,J. (2004) *El laberinto de la violencia. (The violence labyrnth)* Barcelona Ariel.

Silver, E. (2006). Understanding the relationship between mental disorder and violence: the need for a criminological perspective. *Law and Human Behavior, 30*(6), 685-706.

Skeem, J. L. y Mulvey, E. P. (2001). Psychopathy and community violence among civil psychiatric patients: results from the MacArthur Violence Risk Assessment Study. *Journal of Consulting and Clinical Psychology, 69*(3), 358-374.

Skeem, J. L., Mulvey, E. P., Appelbaum, P. S., Banks, S., Grisso, T., Silver, E., et al. (2004). Identifying subtypes of civil psychiatric patients at high risk for violence. *Criminal Justice and Behavior, 31*(4), 392-437.

Skeem, J. L., Mulvey, E. P. y Grisso, T. (2003). Applicability of traditional and revised models of psychopathy to the Psychopathy Checklist: Screening Version. *Psychological Assessment, 15*(1), 41-55.

Steadman, H. J., Mulvey, E. P., Monahan, J., Clark Robins, P., Appelbaum, P. S., Grisso, T., et al. (1998). Violence by people discharged from acute psychiatric inpatient facilities and by others in the same neighborhoods. *Archives of General Psychiatry, 55*(5), 393-401.

Steadman, H. J., Silver, E., Monahan, J., Appelbaum, P. S., Clark Robins, P., Mulvey, E. P., et al. (2000). A Clasification Tree Approach to the Development of Actuarial Violence Risk Assessment Tools. *Law and Human Behavior, 24*(1), 83-99.

Storr, A. (1991). *La agresividad humana*. Madrid. Alianza Editorial

Strand, S., Belfrage, H., Fransson, G. y Levander, S. (1999). Clinical and risk management factors in risk prediction of mentally disordered offenders... more important than historical data? A retrospective study of 40 mentally disordered offenders assessed with the HCR-20 violence risk assessment scheme. *Legal and Criminological Psychology, 4*(1), 67-76.

Stuart, H. (2003). Violencia y enfermedad mental: una consideración general.(Violence and mental illness: a general consideration) *World Psychiatry, 2*, 121-124.

Stuart, H. y Arboleda-Flórez, J. (2001). A public health perspective on violent offenses among persons with mental illness. *Psychiatric Services, 52*(5), 654-659.

Swanson, J. W., Borum, R., Swartz, M. S. y Monahan, J. (1996). Psychotic symptoms and disorders and the risk of violent behavior. *Criminal behavior and mental health, 6*, 317-338.

Swanson, J. W., Holzer, C. E., Ganju, V. K. y Jono, R. T. (1990). Violence and the psychiatric disorder in the community: Evidence from the Epidemiologic Catchment Area surveys. *Hospital y Community Psychiatry, 41*(7), 761-770.

Swanson, J. W., Swartz, M. S., Borum, R., Hiday, V. A., Wagner, R. y Burns, B. J. (2000). Involuntary out-

patient commitment and reduction of violent behavior in persons with severe mental illness. *British Journal of Psychiatry, 176*, 324-331.

Teplin, L. A. (1990). The prevalence of severe mental disorder among male urban jail detainees: comparison with the Epidemiologic Catchment Area Program. *American Journal of Public Health, 80*(6), 663-669.

Tiihonen, J., Hakola, P., Eronen, M., Vartiainen, H. y Ryynänen, O.-P. (1996). Risk of homicidal behavior among discharged forensic psychiatric patients. *Forensic Science International, 79*, 123-129.

Tiihonen, J., Isohanni, M., Räsänen, P., Koiranen, M. y Moring, J. (1997). Specific major mental disorders and criminality: A 26-year prospective study of the 1966 northern Finland birth cohort. *The American Journal of Psychiatry, 154*(6), 840-845.

Tobeña,A. (2001). *Anatomía de la agresividad humana.(Anatomy of human aggression)* Barcelona. Circulo de lectores.

Waldheter, E. J., Jones, N. T., Johnson, E. R. y Penn, D. L. (2005). Utility of social cognition and insight in the prediction of inpatient violence among individuals with severe mental illness. *The Journal of Nervous and Mental Disease, 193*(9), 609-618.

Walsh, E., Buchanan, A. y Fahy, T. (2002). Violence and schizophrenia: examining the evidence. *British Journal of Psychiatry, 180*, 490-495.

Walsh, E., Gilvarry, C., Samele, C., Harvey, K., Manley, C., Tattan, T., et al. (2004). Predicting violence in schizophrenia: a prospective study. *Schizophrenia Research, 67*, 247-252.

Wallace, C., Mullen, P. y Burgess, P. (2004). Criminal offending in schizophrenia over a 25-year period marked by deinstitutionalizaton and increasing prevalence of comorbid substance use disorders. *American Journal of Psychiatry, 161*(4), 716-727.

Wallace, C., Mullen, P., Burgess, P., Palmer, S., Ruschena, D. y Browne, C. (1998). Serious criminal offending and mental disorder. Case linkage study. *British Journal of Psychiatry, 172*, 477-484.

Webster, C. D., Douglas, K. S., Eaves, D. y Hart, S. D. (1997a). *HCR-20. Assessing risk for violence. Version 2*. Vancouver, Canada: Mental Health, Law, and Policy Institute, Simon Fraser University.

Wessely, S. (1997). The epidemiology of crime, violence and schizophrenia. *British Journal of Psychiatry, 170*(Suppl. 32), 8-11.