



Risk of violence of inpatients with severe mental illness – Do patients with schizophrenia pose harm to others?



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ABSTRACT

Individuals suffering from schizophrenia are frequently considered to be dangerous. The current longitudinal chart review was carried out to investigate the diagnostic mix of patients who were admitted to the Department of Psychiatry and Psychotherapy at the Medical University Innsbruck due to risk of harm to others. The sample consisted of all adult inpatients admitted to psychiatric acute care units in the years 1992, 1997, 2002, and 2007. Data collection included diagnoses, criteria for risk of harm to others, and the use of mechanical restraint. Altogether, 7222 admissions were reviewed. Of these, 529 patients had to be admitted to a locked unit because of risk of harm to others. Among those mechanical restraint was more often used in patients with organic mental disorders, Cluster B personality disorders, and mania than in patients with schizophrenia. Patients suffering from schizophrenia with comorbid psychoactive substance use constitute a potentially harmful population and are therefore frequently admitted to locked units due to risk of harm to others. However, in the current study additional coercive measures were more commonly applied in patients suffering from personality disorders and organic mental disorders.

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1. Introduction

The risk of aggressive behaviour of individuals suffering from schizophrenia is still being discussed controversially: Häfner and Böker (1974) stated that people with severe mental illness do not have a higher risk for violent behaviour than the general population. The fact that the group of schizophrenia patients had been shown to have a 5 times higher risk for violent behaviour in this investigation did not attract interest and, furthermore, was considered to be of minor importance because most patients “lived” in locked psychiatric units. 20 years later, Torrey (1994) reviewed studies and media accounts on violent behaviour by individuals with serious mental illness and found that, although the majority of patients was not more dangerous than the general population, a more dangerous subgroup exists. According to Haller et al. (2001) the risk of criminal violence in an Austrian province increased by a factor of 3.2 in people with schizophrenia compared to the general population, while the risk to commit homicide was 38 times higher. Overall, the risk of violent crime is reported to be 3 to

5 times higher in people with schizophrenia than in the general population (Haller et al., 2001; Lindqvist and Allebeck, 1990; Swanson et al., 2006; Wessely et al., 1994), and 8 times higher in women with psychosis (Fazel et al., 2009b). Commonly described predictors include a history of violent behaviour, non-compliance with medication, and substance abuse (Torrey, 1994; Flannery et al., 2001; Grafe, 2006). Fazel et al. (2009a) have shown that the strongest risk factors for violent crime conviction in patients suffering from schizophrenia are previous violent crime and comorbid psychoactive substance use, each with a 2-fold higher risk in males and a 4-fold higher risk in female patients. In Sweden, 8.5% of schizophrenia patients without any psychiatric comorbidity have a history of violence compared to 27.6% of those with comorbid alcohol or drug use (Fazel et al., 2009c). According to a meta-analysis the risk to become violent is 4 times higher in schizophrenia patients with psychoactive substance use than in those without (Fazel et al., 2009b). A recent survey (Schanda et al., 2010) reported a moderate but significantly increased risk of delinquency in patients suffering from schizophrenia, especially regarding severe violent offences. Apparently, comorbid psychoactive substance use has an impact on the extent of illegal behaviour in this group, but even when considering that the risk of homicide in patients with schizophrenia amounts to the 7-fold of that in the

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general population. Rates of homicides by people with schizophrenia also appear to be influenced by cultural and sociological factors, such as the level of violence in the wider community. This has been shown by Golenkov et al. (2011): In a Russian Republic with a high total rate of homicides the rate of offenders suffering from schizophrenia was two to three times higher than that reported elsewhere, although the characteristics of these patients did not differ from those in regions with lower rates of homicide.

Previous studies have reported people with schizophrenia to be over-represented among hospitalised aggressive patients. Tardiff and Sweillam (1980), for instance, found 43% of aggressive psychiatric inpatients to suffer from schizophrenia. Similarly, Rossi et al. (1986) established that 36% of patients who were admitted because of aggressive behaviour were suffering from schizophrenia. In contrast, a recent investigation found no evidence for schizophrenia patients to be more aggressive than others. Indeed, people with bipolar or personality disorders were reported to be more likely to be involved in aggressive incidents (Carr et al. 2008).

In summary, the current knowledge suggests that schizophrenia is associated with an increased risk of violence and that a subgroup of schizophrenia patients with an even higher risk exists (Taylor, 2008; Haller et al., 2004; Schanda, 2006; Walsh et al., 2002; Fazel and Grann, 2006). The variables that are associated with the occurrence of violence in schizophrenia patients include demographics (young male), psychotic symptoms, comorbid psychoactive substance use, personality disorders, and mentalizing disabilities (Bo et al., 2011).

The current survey was carried out to investigate the risk of aggressive behaviour in people suffering from schizophrenia who were treated at the inpatient units of the Department of Psychiatry and Psychotherapy at the Medical University Innsbruck since the early 1990s when a new law of compulsory hospitalization was enacted in Austria. In particular, the necessity of admission to a locked unit because of risk of harm to others was compared to that of patients suffering from other psychiatric illnesses. In addition, a potential association between diagnosis and the necessity of mechanical restraint was investigated.

2. Methods

This chart review was conducted at the Department of Psychiatry and Psychotherapy at the Medical University Innsbruck. The Hospital has 70 acute care beds, 18 of these in locked units (10 for women, 8 for men) serving a catchment area of about 120,000 people.

In 1991, a new law for compulsory hospitalization was enacted in Austria. For details, the interested reader is referred to [http://de.wikipedia.org/wiki/Unterbringung_\(%C3%96sterreich\)](http://de.wikipedia.org/wiki/Unterbringung_(%C3%96sterreich)). Briefly, people can only be admitted to a locked unit if they suffer from a mental disorder, pose acute risk of harm to themselves or others, and cannot be managed with subsidiary alternative measures. These facts have to be declared by two psychiatrists. The legitimacy of involuntary hospitalization is assessed by court at regular intervals.

As the implementation of standardized documentation took some time, data collection for this report commenced after December 31, 1991 in order to optimize quality of data. The sample consisted of all inpatients in psychiatric acute care units older than 18 in 1992, 1997, 2002 and 2007 with a focus on those admitted to a locked unit. Intervals of 5 years were considered reasonable to evaluate trends and changes over the years. Both administrative data and medical records were evaluated by trained raters and a board certified psychiatrist from May 2009 to July 2010. Next to diagnosis dangerousness criteria (risk of harm to self and/or others), and the necessity of medication and/or restraint three hours following admission to a locked unit were recorded. This time frame was seemed to be reasonable to check acute dangerousness and treatment.

Details concerning medication will be reported elsewhere (Rauch et al., unpublished results). We specifically focused on patients admitted to a locked unit due to risk of harm to others or aggressive behaviour, including verbal aggression and threats as well as physical aggression against objects and others, and a particularly difficult to manage subgroup of patients who needed additional physical restraint including the use of safety belts or safety bed rails. The documentation of any coercive interventions is a legal requirement.

Diagnoses were classified according to ICD-10 (International Statistical Classification of Diseases and Related Health Problems, 10th revision) (Miller et al., 2010).

Personality disorders (ICD-10: F6) were additionally classified according to Clusters A–C out of DSM-IV, Axis II (Diagnostic and Statistical Manual of Mental Disorders, 4th revision) (American Psychiatric Association, 2000).

The study was approved by the Ethics Committee of the Medical University Innsbruck.

2.1. Statistical analysis

Multiple logistic regression was used as the main analysis tool. In the first part of the analysis, this method was employed to compare the variables of primary interest (involuntary admission yes/no, risk of harm to others yes/no, requirement of mechanical restraint yes/no) by index year, adjusting for age and gender. In the main part of the analysis, multiple logistic regression was applied in order to evaluate the joint effect of age, gender, year of admission and diagnostic group on the same outcome variables as above. Among the diagnostic groups, the group F3, affective disorders, was used as the reference group, as it could be expected that the risk of posing harm to others is comparatively small within this group. Odds ratios (OR) together with 95% confidence intervals (CI) were calculated as a measure of effect size.

As there was a strong increase in involuntary admission rate and in the two other binary outcome variables during the observation period, a few additional analyses were performed. To check if certain diagnostic groups were mainly responsible for this increase, we tested for interactions between diagnostic group and time within the framework of the logistic regression model. Moreover, to find out if the effect of the calendar year can at least partly be explained by the (decreasing) length of hospitalization, we performed further multiple logistic regression analyses considering duration of hospitalization as an additional covariate. Potential changes in the length of hospitalization in the course of time were investigated by means of linear mixed models, with patients as units, admissions within patients as “repeated” factor and auto-regressive covariance structure (AR1), using the same independent variables as above. Finally, we also tested for an effect of medication (antipsychotics yes/no, benzodiazepines yes/no) on the three outcome variables by means of logistic regression.

3. Results

In the 4 index years, a total of 7222 inpatient admissions (56.2% female, age 44.2 ± 16.6 years (mean $\pm$ S.D.)) were documented at the Department of Psychiatry and Psychotherapy at Innsbruck Medical University. Overall, 2238 (31.0%) of these patients were admitted to a locked unit. A risk of harm to others was observed in approximately one quarter of involuntary admissions (529 of 2238 = 23.6%) or in 7.3% of all admissions. The necessity of mechanical restraint within three hours following admission to a locked unit was required in 343 cases or in 15.3% of involuntary admissions (4.7% of all admissions).

Over the course of time, the proportion of involuntary admissions increased from 6.2% in 1992 to 43.8% in 2007 ($p < 0.001$). Similarly, the percentage of admissions involving harm to others and the percentage of admissions requiring the use of mechanical restraint increased significantly from 1992 to 2007. However, relative to the number of admissions to a locked unit, the proportion of both admissions with a risk of harm to others and those involving mechanical restraint remained comparatively stable. Details may be found in Table 1.

The male–female ratio did not change significantly in the course of time.

The increase in the percentage of admissions to a locked unit and in the proportion of patients posing harm to others or requiring mechanical restraints was similar across diagnoses, attaining statistical significance for all diagnostic groups except F5 (there were only 8 involuntary admissions in this group). A significant interaction between diagnosis and year was found for admissions to a locked unit (larger increase in the groups F0, F1 and F6 compared to F3), but not for harm to others or requirement of mechanical restraint.

3.1. Admissions to a locked unit in relation to diagnostic group

An overview of the rates of involuntary admissions by diagnostic group is shown in Table 2. Logistic regression analysis with

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