

Field Study

## Occupational Risk due to Violence in a Psychiatric Ward

Silvana SALERNO<sup>1</sup>, Laura DIMITRI<sup>2</sup> and Irene Figà TALAMANCA<sup>2</sup>

<sup>1</sup>Division of Biomedicine, ENEA and <sup>2</sup>Department of Animal and Human Biology, University La Sapienza, Italy

**Abstract: Occupational Risk due to Violence in a Psychiatric Ward: Silvana SALERNO, et al. Division of Biomedicine, ENEA, Italy—Objectives:** This study aimed to elucidate causes of aggression from clinical records of a psychiatric ward of a major urban public hospital where aggression towards Health Care Workers [HCWs] was the second leading cause of hospital work-related injuries after needlesticks. **Methods:** Psychiatric patients' clinical records for the period 2002–2005 were examined and coded. Data were analysed with the case-control approach to identify the determinants of the aggressive behavior towards HCWs, after adjustment for age, gender, nationality and diagnosis of the patients. **Results:** We examined 2,196 records and identified 321 individuals who had become violent at least once towards nurses, physicians or other patients or relatives during their hospitalization. The victims of the aggressive behavior were mainly nurses. A history of involuntary admission was strongly associated with aggression [OR 4.5, 95% CI 3.4–5.9]. Diagnosis, gender and nationality of the patients were not predictive of aggressive behavior towards HCWs. **Conclusions:** Involuntary admission to a psychiatric ward might be a cause of violent behavior towards health care workers, mainly nurses. (*J Occup Health 2009; 51: 349–354*)

**Key words:** Aggressive behavior, Health care workers, Nurses, Occupational health, Psychiatric ward, Psychosocial factors

Results from a European Survey conducted in 2001 show that 4% of the working population report that they have been victims of actual physical violence at their work. The affected individuals mainly work in the service sectors particularly in public administration, education, health care, restaurants and hotels<sup>1</sup>. The relationship with clients/patients is the main risk factor for violence<sup>2</sup> particularly the relationship with patients affected by

mental illness or who are under the effect of alcohol and/or drugs. The health care setting is frequently the scene of episodes of violence. According to the European Nurses Early Exit Study [NEXT]<sup>3</sup>, resignation of nurses is very frequent and it is often related to adverse work-related factors such as violence. The same observation was reported in a South African study: workplace violence among nurses, both verbal and psychological, were among the causes of voluntary resignations<sup>4</sup>. Although the hospital is a place where people seek health, working in a hospital presents environmental risks of occupational illnesses and occupational injuries<sup>5</sup>. Most often, such injuries involve women workers. In Italy, 60% of all health care workers and 76% of all hospital nurses are women. In a previous study of the hospital records of a major public hospital in Rome [1999–2004], we found 256 records of hospital work injuries, 24% of which were due to patients' aggressive behavior towards health care workers [HCWs], in particular nurses<sup>6</sup>. Patients' aggressive behavior was the second leading cause of injury after needlesticks and the psychiatric ward was the most affected place.

To further explore the phenomenon, we undertook a specific study of occupational risk due to the aggressive behavior of patients in a psychiatric ward. We were particularly interested to identify gender differences among aggressive patients and their victims.

Our objectives were to examine the frequency and type of aggressive behavior exhibited by patients and especially to identify the characteristics of patients who were more likely to exhibit aggressive behavior towards HCWs. Ultimately, this information could be used to plan preventive strategies.

### Subjects and Methods

The study was conducted in a major urban public hospital in Rome. The hospital has 200 beds and includes all major hospital departments. As required by Italian occupational health legislation, the hospital has an occupational health service, which monitors work related risks, such as ionizing radiation, chemical agents and infective risks. Psychosocial factors and violence had

Received Oct 14, 2008; Accepted Apr 14, 2009

Published online in J-STAGE Jun 1, 2009

Correspondence to: S. Salerno, Division of Biomedicine ENEA, Box 018, Rome 00123, Italy (e-mail: silvana.salerno@enea.it)

not been examined as occupational risks before the present study in this setting. In addition the occupational health service had no preventive strategy against these risk factors.

Data were gathered on all the 2,196 patients admitted in the years 2002–2005 to the psychiatric ward and were abstracted from the psychiatric clinical charts records kept by nurses. The records contain information on age, gender, marital status, education, status of employment, nationality, diagnosis according to the International Classification of Diseases 9th Revision Clinical Modification (ICD9CM), admission order, type of admission [voluntary or involuntary], and use of mechanical restraint. In addition, the records describe the behavior of the patient for clinical purposes. The attending nurse notes on the records aggressive behaviors of the patients, including aggression towards the nurse her/himself. On the basis of this information we coded the type of aggressive behaviors exhibited at least once and the victim of the reported aggression. The victims of aggression were classified by gender as nurses, physicians and “others” which included patients or relatives. The aggression reports were classified as (1) verbal aggression such as yelling, insults, verbal threats, (2) physical aggression such as kicking, pushing, assaulting. Other data coded included the self-destructive behavior, day and hour of the aggressive behaviors, and damage to objects resulting from the aggressive behaviors.

Data were analysed using the STATA<sup>7)</sup> statistical software programme and gender differences were tested by the Chi-square test.

In an attempt to identify the characteristics of patients likely to exhibit aggressive behavior, we further analysed the data with a case-control approach. Patients with aggressive behavior were classified as “cases” (n=321) and patients without aggressive behavior (n=1,872) as “controls”. Finally, the variables showing differences between patients with aggressive behavior and controls, were further examined by a multivariate regression analysis. Odds ratio and 95% confidence intervals were calculated with a model that included age, gender, nationality, diagnosis and type of admission.

The research presented here was submitted and approved by the hospital management which also handles ethical issues in research undertaken at the hospital.

## Results

The demographic, occupational and clinical characteristics of all patients (cases and controls) are summarized in Table 1. Male patients were significantly younger, more often Italian (not immigrants), single, of lower educational level and unemployed or disabled. Women patients were on the average older, more likely to be immigrants, divorced or separated, more educated

and often homemakers. More males were diagnosed as having schizophrenic psychosis and more females as having schizoaffective psychosis. There were no gender differences in the percent of involuntary admissions, in use of mechanical restraint, in self-destructive behavior or aggressive behaviors towards objects.

Patients' aggressive behavior was recorded for 321 cases (15%). Table 2 shows the selected characteristics of the aggressive behaviors. Male patients were more prone than women to exhibit aggressive behavior (13% of all female patients, vs 16% of all male patients  $p \leq 0.05$ ). Aggressive behaviors were most frequently physical (51%) and often both verbal and physical (34%) for both men and women patients. The victims of these aggressive behaviors were mostly nurses. There were differences in the type of aggressive behavior according to the profession of the victim. The Physicians, although less frequently victims of aggression, were more likely to be physically alone when assaulted than the nurses (26% of all physicians vs 4% of all nurses). The difference was statistically significant. Most aggressive behaviors occurred during the day in the first two days after admission.

The characteristics of patients more likely to exhibit aggressive behavior are shown in Table 3. In our study, aggressive behaviors were more frequent among psychotic patients but the increase in risk was not statistically significant [OR 1.41; 95% CI 0.95–2.09 for schizophrenic psychosis, and 1.32; 95% CI 0.85–2.09 for schizoaffective psychosis]. The risk of aggressive behaviors was strongly associated with involuntary admission [OR 4.50 95% CI 3.40–5.96]. After controlling for the confounders of age, gender, nationality, diagnosis and type of admission, the data showed that the risk of aggressive behaviors towards HCWs was not related to the diagnosis of the patient, gender or nationality. The risk however was higher for patients aged 31–40 and for those hospitalised involuntarily.

## Discussion

The objective of the present study was to evaluate the risk of aggressive behavior towards HCWs in the psychiatric setting. Our findings show that physically aggressive behaviors to HCWs, especially to nurses, is quite frequent, especially by patients admitted involuntarily. Previous studies have also shown that violent behaviour is a serious problem in the psychiatric ward. A study in the US for example, based on self-reported injuries, found a greater risk for nurses working in psychiatric facilities than in other departments (OR 2.0; 95% CI 1.1–3.7)<sup>8)</sup>. Similar observations were made on the basis of the Finnish Occupational Accidents DataBase<sup>9)</sup> and in the Washington State Workers' Compensation Claims and hospital recorded incident reports<sup>10)</sup>.

**Table 1.** Demographic, occupational and clinical characteristics of the patients by gender (%)

Patient's clinical charts* 2002–2005	Women		Men		p
	N	%	N	%	
Mean age [yr]	994	45	1,202	55	
Immigrants	44.7		40.8		
Marital status	67	7	47	4	0.01
Single	355	41	678	67	0.001
Married	350	41	224	22	0.001
Divorced/Separated/Widowed	153	18	114	11	0.001
Education level					
Low	190	22	237	23	NS
Medium	387	45	504	50	0.05
High	281	33	268	27	0.001
Status of employment					
Employed	152	18	205	20	NS
Unemployed	274	32	452	45	0.001
Student	23	3	35	4	NS
Homemaker	209	24	12	1	0.001
Disable and retired	196	23	302	30	0.001
Hospital admission					
First	22	7	22	6	NS
Other	281	93	363	94	NS
Diagnosis [ICD 9 CM]					
Schizophrenic psychosis	451	48	646	56	0.001
Schizo affective psychosis	334	35	268	23	0.001
Personality disorders	136	14	185	16	NS
Dementia	20	2	46	4	0.01
Psychosis due to alcohol	6	1	6	1	NS
Involuntary admission					
Yes	135	14	194	16	NS
Restraint treatment					
Yes	51	5	79	7	NS
Self-Destructive behavior					
Yes	13	1	15	1	NS
Aggressive behavior towards objects					
Yes	17	2	15	1	NS

\*due to missing values the total numbers are different.

In our study, aggressive behaviors were more frequent among psychotic patients but the increase in risk was not statistically significant. The same finding was reported in another recent study on violent behavior of acute psychiatric in-patients. A diagnosis of schizophrenia was not related to violent behavior<sup>11)</sup>.

The main variable predicting aggressive behaviour towards health care professionals in our study was forcible admission. This result, which is of particular interest for preventive occupational health policies, was also found in two recent clinical studies one in Switzerland<sup>12)</sup> and

one in the United Kingdom<sup>13)</sup>. Another German clinical study also showed that involuntary admission was a strong predictor of aggressive behavior [OR 3.3]<sup>14)</sup>. The above studies however examined the problem of forcible admission from the point of view of its clinical implications rather than from the point of view of the occupational health and safety of the psychiatric ward health care workers. Involuntary admission and treatment should be used with caution and only as a last resort once other methods have failed<sup>15)</sup>. Involuntary first admission of patients with schizophrenia is a predictor

**Table 2.** Patients aggressive behaviors and their characteristics by gender (N=321) (%)

	Women		Men		<i>p</i>
	N	%	N	%	
Aggressive behavior (at least once)					
Yes	129	13	192	16	0.05
Type of aggressive behavior					
Verbal	18	14	29	15	NS
Physical	69	53	98	51	NS
Verbal and physical	42	33	65	34	NS
Victims of the aggressive behavior *					
Nurses	104	66	152	65	NS
Physicians	13	9	25	11	NS
Other patients or relatives	41	26	57	24	NS
Time of the aggression					
Day	62	49	90	48	NS
Night	13	10	19	10	NS
Night and day	24	19	30	16	NS
Always	27	21	50	26	NS
Day of aggression since admission					
<1-2	52	41	75	40	NS
3-4-5	16	13	33	17	0.01
>6	15	12	18	9.5	NS
All	21	17	28	14	NS
Other	23	18	35	18.5	NS

\*due to more than one victim the number is somewhat higher.

**Table 3.** Multivariate analysis and adjusted odds ratio and 95% CI of aggressive behavior by selected characteristics of psychiatric patients

Diagnosis	OR	<i>p</i> >[z]	95% CI
Schizophrenic psychosis	1.41	0.087	0.95-2.09
Schizoaffective psychosis	1.32	0.209	0.85-2.07
Personality disorders	1.34	0.486	0.58-3.06
Age			
Under 30	1.89	0.106	0.87-4.12
31-40	<b>2.09</b>	<b>0.006</b>	<b>1.23-3.55</b>
41-50	1.58	0.073	0.95-2.60
51-60	0.85	0.572	0.49-1.46
61 over	1.59	0.087	0.93-2.70
Gender	1.11	0.424	0.85-1.44
Nationality	0.72	0.306	0.38-1.34
Involuntary admission	<b>4.50</b>	<b>0.000</b>	<b>3.40-5.96</b>

of future involuntary admissions<sup>16)</sup> showing the importance of preventing the vicious circle in which the risk of patients aggressive behavior can increase with involuntary treatment resulting in increased occupational risk for HCWs.

Patient's gender and age have some role in the risk of aggressive behavior. In our data young males were more

likely to be violent but the gender difference was no longer significant after adjustment for confounders. Previous studies also found both genders equally represented in violent behavior in the psychiatric ward<sup>17)</sup>. An interesting observation in this regard, comes from a US study which reported that assaults were more common when the HCW was of the same gender as the patient<sup>18)</sup>.

Unfortunately this hypothesis could not be tested in our data, because the information on the gender of victims was not always available. The role of gender should however be studied better from both patient's and health care workers' perspective.

Long term health effects of HCWs exposed to patients aggressive behavior are also relevant<sup>19-22</sup>. In addition, violence may be a cause of poor quality of patient care<sup>23</sup>. Another frequent consequence of work violence is the tendency of nurses to move to other departments or to other professions, causing a shortage of nursing staff in psychiatric wards.

The atlas of nurses in mental health<sup>24</sup> confirmed that *"the stigma of mental illness, the working conditions, and the lack of incentives for providing mental health care make the recruitment of nurses for mental health more difficult"* and that nursing shortages are also caused by *"the lack of safety and security in the work environment"*.

The issue of violence of mental patients is ethically sensitive. In Italy the human rights of psychiatric patients were only recognized after the so called "antipsychiatric reform" in 1978<sup>25, 26</sup>. Earlier psychiatric patients were victims of violence themselves and suffered isolation and neglect. Thus the ethical problem of violence in the mental health setting is still controversial, especially in the cases of forcible hospitalization. Finding the right balance between the protection of hospital staff and the correct management of violent psychiatric patients is not easy both from the ethical and the therapeutic points of view.

Most mental health professionals are primarily concerned with the problem of aggressive behavior of the patient towards him/herself and other people rather than to HCWs<sup>27</sup>. This is why it is probable that the clinical records used as a source for our study underestimate the phenomenon.

It is likely that a number of incidents of aggressive behavior by patients are considered "part of the job" and are not recorded<sup>28, 29</sup>. In fact such episodes are not perceived as occupational risks by hospital managers, the police, and the courts leaving nursing staff in a vulnerable and isolated condition<sup>30</sup>. As shown by a British study however, training to face the situation of violence may not be sufficient without the necessary organizational and logistic support<sup>31</sup>.

The findings of this study should of course be interpreted with caution. The study is based on clinical records compiled for therapeutic purposes, not for purposes of research, and in fact some of the information was not complete. More important, the data concerned only a single hospital, which although it represents an important psychiatric facility, may not be representative of other facilities. However, forcible hospitalisations do occur in all public hospital facilities and not only in Italy,

and the strong association between the risk of violence to staff and forcible hospitalization may be of use in the prevention of violence in all hospital settings.

## Conclusions

This study showed that the psychiatric ward presents an occupational risk to HCWs, mainly nurses but also physicians, due to patients aggressive behavior. The aggressive behavior was particularly high when the patient was admitted involuntarily. Most aggressive behaviors occurred during the day time and within the first two days of admission. Psychotic patients were more likely to exhibit aggressive behavior to HCWs. These findings confirm those of studies conducted in other countries and indicate the need to take preventive measures for the health and safety of hospital workers, particularly those working in psychiatric wards. Patients aggressive behaviors should be viewed as a preventable occupational risk and should be recognized and compensated like other occupational risks. Training programmes and support measures should be provided with particular attention to the circumstances of higher risk, i.e. the admission of young, schizophrenic and uncooperative patients.

*Acknowledgments:* We thank Dr. Alberto Baldasseroni (Florence, Epidemiology Unit) for help in statistical analysis, Dr. Marta Canulla for help in collecting clinical records and the psychiatric ward team, particularly the head nurse Agnese Fabbri.

## References

- 1) Paoli P, Merlié D. 2001. Third European Survey on working condition 2000. European Foundation for the improvement of living and working condition. Luxembourg. [Online]. 2005 [cited 2009 Jan 23]; Available from: URL: <http://www.eurofound.europa.eu/publications/htmlfiles/ef0121.htm>
- 2) European Agency for Safety and Health at Work-OSHA. 2002. Factsheet n. 24 Violence at work. [Online]. 2002 [cited 2009 Jan 23]; Available from: URL: [http://osha.europa.eu/publications/factsheets/24/index.htm?set\\_language=en](http://osha.europa.eu/publications/factsheets/24/index.htm?set_language=en)
- 3) Estryng-Behar M, Van der Heijden B, Camerino D, et al. Violence risks in nursing-Results from the European "NEXT" Study". *Occup Med* 2008; 58: 107-14.
- 4) King LA, McInerney PA. Hospital workplace experiences of registered nurses that have contributed to their resignation in the Durban metropolitan area. *Curationis* 2006; 29: 70-81.
- 5) Simonowitz JA. Health care workers and workplace violence. *Occup Med* 1996; 11: 201-308.
- 6) Dimitri L, Figà Talamanca I, Salerno S. Hospital as a factory: Working and environmental risks: A need for an integrated approach. In: *Proceedings of the International Conference Healthcare Systems*

- Ergonomics and Patient Safety. London: Taylor & Francis; 2005. p. 347–50.
- 7) STATA 8.1. Statistics/Data analysis. [Online]. 2001 [cited 2009 Jan 23]; Available from: URL: <http://www.stata.com>
  - 8) Gerberich SG, Church TR, McGovern PM, et al. Risk factors for work-related assaults on nurses. *Epidemiology* 2005; 16: 704–9.
  - 9) Saarela KL, Isotalus N. Workplace violence in Finland: High-risk groups and preventive strategies. *Am J Ind Med Supp* 1999; 11: 80–1.
  - 10) Bensley L, Nelson N, Kaufman J, Silverstein B, Kalat J, Shields JW. Injuries due to assaults on psychiatric hospital employees in Washington State. *Am J Ind Med* 1997; 31: 92–9.
  - 11) Grassi L, Biancosino B, Marmai L, et al. Violence in psychiatric units: A 7-year Italian study of persistently assaultive patients. *Soc Psychiatr Epidemiol* 2006; 41: 698–703.
  - 12) Abderhalden C. Frequency and severity of aggressive incidents in acute psychiatric wards in Switzerland. *Clin Pract Epidemiol Ment Health*, 2007; 3: 30.
  - 13) Soliman AE, Reza H. Risk factors and correlates of violence among acutely ill adult psychiatric inpatients. *Psychiatr Serv* 2001; 52: 75–80.
  - 14) Ketelsen R, Zechert C, Driessen M, Schulz M. Characteristics of aggression in a German psychiatric hospital and predictors of patients at risk. *J Psychiatr Ment Health Nurs* 2007; 14: 92–9.
  - 15) Nelstrop L, Chandler-Oatts J, Bingley W, et al. A systematic review of the safety and effectiveness of restraint and seclusion as interventions for the short-term management of violence in adult psychiatric inpatient settings and emergency departments. *Worldviews Evid Based Nurs* 2006; 3: 8–18.
  - 16) Fennig S, Rabinowitz J, Fennig S. Involuntary first admission of patients with schizophrenia as a predictor of future admissions. *Psychiatr Serv* 1999; 50: 1049–52.
  - 17) Krakowski M, Czobor P. Gender differences in violent behaviors: Relationship to clinical symptoms and psychosocial factors. *Am J Psychiatry* 2004; 161: 459–65.
  - 18) Flannery RB Jr, Marks L, Laudani L, Walker AP. Psychiatric patient assault and staff victim gender: Fifteen-year analysis of the Assaulted Staff Action Program [ASAP]. *Psychiatr Q* 2007; 78: 83–90.
  - 19) Wieclaw J, Agerbo E, Mortensen PB, Burr H, Tuchsén F, Bonde JP. Work related violence and threats and the risk of depression and stress disorders. *J Epidemiol Community Health* 2006; 60: 771–5.
  - 20) Erkol H, Gökdoğan MR, Erkol Z, Boz B. Aggression and violence towards health care providers—A problem in Turkey? *J Forensic Leg Med* 2007; 14: 423–8.
  - 21) Samuelsson M, Gustavsson JP, Petterson IL, Arnetz B, Asberg M. Suicidal feelings and work environment in psychiatric nursing personnel. *Soc Psychiatr Epidemiol* 1997; 32: 391–7.
  - 22) Chen SC, Hwu HG, Williams RA. Psychiatric nurses' anxiety and cognition in managing psychiatric patients' aggression. *Arch Psychiatr Nurs* 2005; 19: 141–9.
  - 23) Arnetz JE, Arnetz BB. Violence towards health care staff and possible effects on the quality of patient care. *Soc Sci Med* 2001; 52: 417–27.
  - 24) World Health Organization. Atlas of nurses in mental health. [Online] 2007 [cited 2009 Jan 23]; Available from: URL: [http://www.who.int/mental\\_health/evidence/nursing\\_atlas\\_2007.pdf](http://www.who.int/mental_health/evidence/nursing_atlas_2007.pdf)
  - 25) Crepet P. The Italian mental health reform nine years on. *Acta Psychiatr Scand* 1988; 77: 515–23.
  - 26) Rissmiller DJ, Rissmiller JH. Evolution of the antipsychiatry movement into mental health consumerism and the related debate. *Psychiatr Serv* 2006; 57: 863–6.
  - 27) Keski-Valkama A, Sailas E, Eronen M, Koivisto AM, Lönnqvist J, Kaltiala-Heino R. A 15-year national follow-up: Legislation is not enough to reduce the use of seclusion and restraint. *Soc Psychiatry Psychiatr Epidemiol* 2007; 42: 747–52.
  - 28) Baxter E, Hafner RJ, Holme G. Assaults by patients: The experience and attitudes of psychiatric hospital nurses. *Aust NZJ Psychiatry* 1992; 26: 567–73.
  - 29) Yassi A. Assault and abuse of health care workers in a large teaching hospital. *CMAJ* 1994; 151: 1273–9.
  - 30) Rose MJ. A survey of violence toward nursing staff in one large Irish Accident and Emergency Department. *Emerg Nurs* 1997; 23: 214–9.
  - 31) Bowers L, Nijman H, Allan T, Simpson A, Warren J, Turner L. Prevention and management of aggression training and violent incidents on U.K. Acute psychiatric wards. *Psychiatr Serv* 2006; 57: 1022–6.