

SHORT REPORT

Risk assessment of aggression toward emergency health care workers

A. Martini¹, S. Fantini², M. C. D'Ovidio¹, A. Ceracchi² and A. De Santis²¹INAIL (Italian Workers' Compensation Authority) RESEARCH, Department of Occupational Medicine, formerly ISPESL (National Institute for Occupational Safety and Prevention), Via Fontana Candida, 1, Monte Porzio Catone, Rome 00040, Italy,²Regional Office of Health Emergency - ARES 118 of the Lazio Region, Via Portuense, 240, Rome 00149, Italy.

Correspondence to: A. Martini, INAIL RESEARCH, Department of Occupational Medicine, formerly ISPESL, Via Fontana Candida, 1, Monte Porzio Catone, Rome 00040, Italy. Tel: +39 06 94181271; fax: +39 06 94181271;

e-mail: agnese.martini@ispesl.it and a.martini@inail.it

Background	Health care and social service workers face a significant risk of job-related violence.
Aims	To develop a method for quantitative evaluation of the risk of violence, as required by Italian and European regulations, against extra-hospital emergency health care workers employed by the Regional Emergency Healthcare Service (ARES 118) in the Lazio Region in Italy.
Methods	Violence to the ARES 118 workers during working hours was examined by analysing injuries reported by them between 2005 and 2007. The assessment method proposed should give a numerical indicator of the risk of violence for each homogeneous group. The quantitative risk was evaluated on the basis of variables such as the days off work for each episode, the total number of aggressive attacks, the type of health intervention involved, etc.
Results	The rate of accidents related to aggression during working hours at the ARES unit was 6.3%, which is significantly higher than the figure of 2% reported for the entire health care sector.
Conclusions	The present evaluation is largely based on analysis of the Injury Register. To increase the sensitivity of the method so that it closely reflects active reporting of events, it would be necessary to implement a procedure for reporting events in a 'company register of acts of violence' and to make workers more aware of the need to report all such episodes.
Key words	Aggression at work; emergency health workers; health care workers; violence at workplace; work accidents.

Introduction

The National Institute for Occupational Safety and Health defines occupational hazards in health care settings as 'violent acts (including physical assaults and threats of assaults) directed toward persons at work or on duty' [1].

Violence is becoming an everyday matter for many workers: bus drivers, teachers, bank safety officers, health care workers and flight attendants [2].

The economic repercussions include loss of productivity, increased sickness absence, increased staff turnover and early retirement for disability, often among quite young workers.

Violence affects 5–20% of European workers. A recent survey by the European Risk Observatory found that 40% of European managers were worried about violence in the workplace, but only 25% had set-up procedures to deal with it. The problem is particularly troublesome in the health care and social service sectors and education [3].

Health care and social service workers have long been faced with a significant risk of violence in their work. The USA Bureau of Labour Statistics gives an incidence of non-fatal aggression of 9.3 per 10 000 for hospital workers compared with 2 per 10 000 for workers in private industry [4].

Violent episodes arise frequently during periods of heavy work and in interactions with patients. Aggression can surface when service is denied, a patient is admitted against his/her will or a health care worker tries to limit eating, drinking (alcohol or other) or smoking [5].

Reports of episodes of violence are most frequent in psychiatric, geriatric and emergency departments [6].

Episodes of violence against health care workers can be viewed as 'sentinel' events indicating risky situations in the workplace, calling for measures for prevention and protection [1].

The aim of this study was to develop a method for quantitative evaluation of the risk of violence, as required by

Italian and European regulations, against extra-hospital emergency health care workers employed by the Regional Emergency Healthcare Service (ARES 118) in the Lazio Region in Italy.

Methods

This study was conducted in ARES 118 in the Lazio Region in central Italy. ARES 118 is a public company that provides regional extra-hospital emergency services by ambulance, helicopter and other emergency vehicles. It has 1136 employees.

Risk was assessed through comparison of injury figures for 2007, with the two previous years (2005 and 2006); statistics from the literature and *a priori* risk assessment.

Inside the company, we identified 'occupational risk groups' (GO), i.e. workers exposed to the same risk of violence. For each group, we analysed the injuries for 2007, considering 'days off work' for the GO members because of violence (days^{off}) and 'violence suffered by GO members' (no.^{aggr}).

For each GO, this gave a 'severity factor due to the violence' (G), which describes the effects of the episode on the person's health based on the relationship between the days off work and the total number of episodes reported by the GO [days^{off}/no.^{aggr}]. This could be described by the following values: (i) if GO is 0 or <1, $G = 1$; (ii) if GO is between 1 and 3, $G = 2$; (iii) if GO is between 4 and 10, $G = 3$ and (iv) if GO > 10, G is 4.

For each G , we calculated a 'probability factor' (P), i.e. the time/day spent in contact with users; this is based on the number of calls for assistance and the number of days worked (no.^{calls}/days^{on}). If the service is active for 24 h/day, then $P = 1$ and if people are on duty 12 h/day, then $P = 0.5$. This gave four exposure classes: (i) low (<5 calls), $P = 1$; (ii) moderate (5–10 calls), $P = 2$; (iii) frequent (11–20 calls), $P = 3$ and (iv) continuous (>20 calls), $P = 4$.

These risk indices were then multiplied, to give the risk of violence ($R^{\text{aggr}} = G \times P$). For a fuller estimate, the R^{aggr} was corrected using a factor C , based on the presence of absence of events reported in the previous years: if no episodes of violence had been recorded in 2005–06, C was considered as 1; if there had been episodes, it was 1.25. The complete R^{aggr} is therefore $G \times P \times C$, which can be interpreted as follows: (i) $R^{\text{aggr}} = 1$, negligible risk; (ii) $R^{\text{aggr}} = 2$ –4 low risk; (iii) $R^{\text{aggr}} = 5$ –8 moderate risk and (iv) $R^{\text{aggr}} \geq 8$ high risk.

Results

Table 1 shows the number of episodes of violence and the number of injuries reported by the workers at ARES 118.

There were 106 GO (groups working in the same area for users with similar characteristics), throughout the Lazio

Table 1. The number of episodes of violence and the number of injuries reported by the workers at ARES 118

Year	N_{aggr}	TOT _{inj}	$N_{\text{aggr}}/\text{TOT}_{\text{inj}}$ (%)
2005	20	302	7
2006	13	263	5
2007	23	315	7

Table 2. Interpretation of aggression risk index

	GO (no.)	% of total GO	Risk classification
$R^{\text{aggr}} 1$	55	52	Negligible
$R^{\text{aggr}} 2$ –4	42	40	Low
$R^{\text{aggr}} 5$ –8	4	4	Moderate
$R^{\text{aggr}} > 8$	5	5	High

Region; 14 (13%) reported episodes of violence. Table 2 shows their risk classification according to the R^{aggr} .

Discussion

Our study of the ARES 118 injury records found that 6% of injuries reported for the period 2005–07 referred to episodes of violence during working hours. This figure is substantially different from the overall figure for the health care sector. The Policlinico S. Matteo in Pavia, examining injury data for 1995–98, noted a real increase in episodes of violence toward health care personnel (two in 1995–96 to three in 1997–98) [7]. Injuries resulting from violence in Italian hospitals, notified to INAIL (the National Insurance Institute for Occupational Injuries) and classified by qualification of the person concerned and modality of the injury, involved 429 episodes, 234 them concerning nurses and 7 doctors [8].

We can presume, however, that there will be more episodes of violence than actual injuries as in many cases, the aggression does not cause bodily harm, and the worker does not report it. The present evaluation is largely based on analysis of the Injury Register, so its sensitivity closely reflects the valid active reporting of events.

The assessment method proposed should give a numerical indicator of the risk of violence for each occupational risk group, so it can be staged, and specific measures can be planned for dealing with it.

Information obtained through the risk assessment can be further enhanced by concentrating the analysis on the conditions and context of the specific work activity, through surveys and interviews aimed at analysing the subjective perceptions of workers.

Within the company, therefore, a working group should be established with the objectives of setting up and implementing a procedure for reporting events in

a 'company register of acts of violence' and making workers more aware of the need to report all such episodes.

The main advantages of the proposed methodology are first, its objectivity as it is a quantitative method, which allows identification of critical business factors in the workplace regardless of the subjective perceptions of workers. Second, its brevity of process allows it to conclude the evaluation process in a short time without resorting to subjective insights in the case of emerging problems. Third, comparison of data obtained from different sources (different times and places of work).

Given the lack of national risk aggression data in the emergency health care sector and the unavailability of specific data in extra-hospital emergency services, quantitative methodology that allows comparison of risk indices obtained in the same company (e.g. data obtained in subsequent years) is particularly important to monitor the development of risk and its management.

Key points

- This study shows that 6.3% of injuries reported in Italian extra-hospital emergency services refer to episodes of violence during working hours, this is important because there are not many studies of this topic in Italy and we found no specific data for extra-hospital emergency services.
- The assessment method proposed gives a numerical indicator of the risk of violence. A quantitative method allows us to identify critical business factors in the workplace regardless of the subjective perceptions of workers.
- The proposed and illustrated process is a simple, concise and objective evaluation method. It allows you to (i) conclude the evaluation process in a short time and (ii) compare risk indices obtained in the same company (e.g. data obtained in subsequent years) and (iii) monitor the development of risk and its management.

Conflicts of interest

None declared.

References

1. NIOSH. Violence: Occupational Hazards in Hospitals. Cincinnati, OH: U.S. Department of Health and Human Services, Centers for Disease and Control Prevention, National Institute for occupational safety and health, DHHS (NIOSH) Publication No. 2002-101. www.njha.com/ep/pdf/112200723511PM.pdf (6 June 2011, date last accessed).
2. International Labour Organization—Programme on Safety and Health at Work and the Environment (SAFework). Violence at Work—A major workplace problem—1 January 2009. www.ilo.org/safework/info/WCMS_10853/lang-en/index.htm (6 June 2011, date last accessed).
3. European Agency for Safety and Health at Work. ESENER. *European survey of Enterprises on New and emerging risks*. 2010 ISBN 978-92-9191-327-5 DOI 10.2802/30026. <http://osha.europa.eu/en> (6 June 2011, date last accessed).
4. U.S Department of Labor (DOL). *Bureau of Labor Statistics: Survey of Occupational Injuries and Illnesses, 2000*. Washington, DC: DOL, 2001. www.bls.gov (6 June 2011, date last accessed).
5. Advanced Workplace Management Inc. *Langley Memorial Hospital—Workplace Violence Risk Assessment*. 2001. www.worksafebc.com/pdfs/healthcare/WorkplaceViolence.pdf (6 June 2011, date last accessed).
6. Estryn-Behar M, van der Heijden B, Camerino D *et al.* Violence risks in nursing—results from the European 'NEXT' Study. *Occup Med* 2008;**58**:107–114.
7. Daglio M, Trincali S, Azzaretti S, Finozzi E, Marchese P, Vlacos D. II fenomeno infortunistico in ospedale: studio retrospettivo con riferimento all'introduzione delle misure preventive e di sicurezza previste dal D.Lgs 626/94. *G Ital Med Lav Erg* 2002;**24**:151–157. www.gimlee.it (6 June 2011, date last accessed).
8. Dati INAIL. Andamento degli infortuni sul lavoro. Numero 1, gennaio 2007. www.inail.it (6 June 2011, date last accessed).