

ORIGINAL ARTICLE

Violence and aggression in the emergency department

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Emerg Med J 2006;23:431–434. doi: 10.1136/emj.2005.028621

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Accepted for publication
5 December 2005

Objective: To investigate the characteristics of incidents of aggression and violence directed towards staff in an urban UK emergency department.

Methods: A retrospective review of incident report forms submitted over a 1 year period that collected data pertaining to the characteristics of assailants, the outcome of incidents, and the presence of possible contributory factors.

Results: A total of 218 incident reports were reviewed. It was found that the majority of assailants were patients, most were male, and the median age was 32 years. Assailants were more likely to live in deprived areas than other patients and repeat offenders committed 45 of the incidents reported during the study period. The incident report indicated that staff thought the assailant was under the influence of alcohol on 114 occasions. Incidents in which the assailant was documented to have expressed suicidal ideation or had been referred to the psychiatric services were significantly more likely to describe physical violence, as were those incidents in which the assailant was female.

Conclusion: Departments should seek to monitor individuals responsible for episodes of violence and aggression in order to detect repeat offenders. A prospective study comprising post-incident reviews may provide a valuable insight into the causes of violence and aggression.

Violence and aggression directed towards healthcare professionals is a significant and longstanding phenomenon. A telephone survey of junior doctors working in emergency departments in 1995 found that 96% had been sworn at and 18% had been physically assaulted.¹ Whilst it has been demonstrated that most incidents of aggression in hospitals take place outside emergency departments, there is evidence to suggest that staff working in emergency medicine are among those most at risk relative to other specialities.^{2–5}

Research in this area has tended to focus upon determining the frequency of aggression and the extent of staff training. A review of the literature related to emergency medicine found few studies had examined information relating to actual incidents.

A prospective review of 102 incident report forms completed in 1984 at the Edinburgh Royal Infirmary found that young males were the most frequent offenders and noted that alcohol was documented to be a related factor in 70% of incidents.⁶ A further paper presented an analysis of informal records kept at the Bristol Royal Infirmary between 1978 and 1989.⁷ Although actual figures were given for only 20 of the 407 incidents recorded, the authors asserted "many violent patients were men aged 17–30, many of whom were drunk". Finally, a more recent study sought, by interviewing staff to compare the characteristics of incidents in an emergency department with those occurring in selected medical wards.⁵ A total of 69 incidents were identified and it was found that those in the emergency department were more likely to occur at night, involve a male assailant, and involve an assailant under the age of 70.

Although the review of report forms from Edinburgh in 1984 produced a number of other findings, it remains the case that little is known about the characteristics of actual incidents beyond the age and gender of assailants. The study presented below aimed to examine a large number of incidents in order to update the existing evidence and expand upon it by considering a number of different incident characteristics.

METHODS

The Queen's Medical Centre provides the only emergency department serving the city of Nottingham in the United

Kingdom. Between 1st November 2002 and 31st October 2003 there were 125 504 attendances to the emergency department of this hospital. A retrospective review of all reported incidents of violence and aggression occurring in the department during this period was undertaken by examining incident report forms, witness statements, and the medical records of assailants.

Before collecting any data, records relating to 10 incidents occurring prior to the study period were examined to determine which variables should be recorded during the study itself. As a result, a decision was made to collect information about the nature of the incident (for example, verbal abuse) and the age, sex, and status of the assailant (patient, relative, or visitor). When the assailant was a patient, the unique emergency department number for that attendance was recorded to help cross-reference incident reports with medical notes. In addition, it was decided that the presence of any contributory factors (drugs, alcohol, or waiting times) and whether or not the assailant had expressed suicidal ideation or had been referred to psychiatric services should also be recorded.

Unfortunately, the nature of the incident could only be determined from the description contained in the incident report and any accompanying witness statements. Likewise, the incident report form did not prompt respondents to record whether they thought the assailant was under the influence of drugs or alcohol or whether they thought waiting times had been a triggering factor (this relied upon staff describing it themselves without being prompted to do so).

In order to minimise the effect of these limitations, one person was responsible for the collection of data and the interpretation of incident descriptions. A database was constructed using SPSS 11.0 for Windows in order to collect the data systematically and a set of criteria for classifying the nature of incidents was produced before any records were examined.

Data were collected by examining the incident report forms kept by the clinical governance staff and the assailant's medical records if they were a patient. At the time of the incident, incident report forms were completed by the

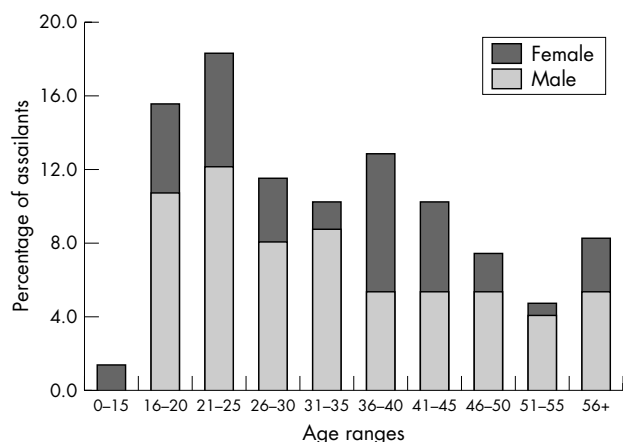


Figure 1 Age distribution of patient assailants.

supervising nurse, any accompanying witness statements were then attached, and the documents were sent to the department’s clinical governance staff. Whilst the department actively encourages the reporting of all episodes of violence or aggression, it was not possible to determine how many incidents went unreported during the study period.

The number of incidents reviewed was equal to the total number of incidents recorded by the clinical governance staff during the study period and, therefore, it is not thought that any incident report forms were inadvertently excluded from the review.

Statistical analysis

Deprivation

A dataset was obtained from the hospital’s information technology department that contained the unique emergency department number for every attendance during the study period, together with the postcode given by the patient during that visit. Using these postcode data, it was possible to determine the local authority ward in which patients attending the department lived.

After the review of incidents, those attendances which had led to incidents in which the assailant was a patient were highlighted. Therefore, patients attending the department who did not cause an incident could be compared to those who did in terms of the ward in which they lived. For ease of analysis, only those attendances by patients giving a postcode in the Nottingham (NG) area were considered; attendances by patients who had no fixed address, did not give a postcode

upon arrival, or who lived outside the NG postcode area were, therefore, excluded.

There are 178 wards in the NG postcode area and these were ranked according to their Index of Multiple Deprivation (IMD) score, which is a government index comparing social deprivation between wards using 32 separate indicators.⁸ A simple comparison was made between the two groups by calculating the lower quartile, median, and upper quartile values of the rank by IMD score of the wards in which patients lived.

It should be noted that the IMD provides information only about the local authority ward in which individuals live and is not specific to streets or individual houses. In addition, the indicators used to compile this score were calculated from data collected between 1998 and 1999 and may not accurately reflect the level of deprivation in these wards at the time of the study.

Incident characteristics and physical violence

Following the review, a decision was made to investigate whether incident characteristics correlated with the severity of that incident. Because most incident characteristics had been recorded as categorical variables, a multiple logistic regression analysis was chosen. This analysis examined the effect of all six categorical variables, adjusted for each other, upon the likelihood of physical violence being described in the report.

This multivariate analysis did not include the quantitative variables (age of the assailant and the IMD rank of the ward in which patient assailants lived). Including these data would have necessitated a conversion into categorical variables using arbitrary limits. For example, conversion of data related to the assailant’s age into two categories such as “less than 30 years” and “30 years and over”.

RESULTS

There were 218 reported incidents of violence and aggression during the study period.

Assailant characteristics

A total of 187 separate individuals were identified as assailants but 14 of these caused a reported incident more than once during the study period. These 14 individuals accounted for 45 (20.6%) of the 218 incidents in total. It should be acknowledged that incidents involving someone who had previously been aggressive or violent may have been more likely to be reported as staff may have recognised the assailant. However, it is also the case that there may have been more than 14 repeat offenders in total since this number does not include those who were responsible for other incidents before the study period.

Of the 187 separate offenders, 165 (88.2%) were patients and 22 (11.8%) were relatives or visitors.

A total of 121 (64.7%) of the 187 assailants identified from the incident report forms were male and 66 (35.3%) were female.

Figure 1 and table 1 show the distribution of age data for the 148 of 165 patient assailants for whom it was possible to obtain this information from the department’s records. These data show that while many assailants were 16–30 years of age (45.2%), the majority were older than this. Ages ranged from 14 to 86 years with a median of 32 (lower quartile: 23, upper quartile: 44).

Deprivation

There were 113 255 attendances during the study period in which patients gave a postcode in the Nottingham (NG) postcode area. Using data from the incident report forms, 156 of these attendances were identified as having led to an

Table 1 Numerical data upon which fig 1 is based

Age	Male	Female	Total	Percentage
0-15	0	2	2	1.4%
16-20	16	7	23	15.5%
21-25	18	9	27	18.2%
26-30	12	5	17	11.5%
31-35	13	2	15	10.1%
36-40	8	11	19	12.8%
41-45	8	7	15	10.1%
46-50	8	3	11	7.4%
51-55	6	1	7	4.7%
56-60	2	0	2	1.4%
61-65	4	1	5	3.4%
66-70	1	0	1	0.7%
71-75	1	0	1	0.7%
76-80	0	1	1	0.7%
81-	0	2	2	1.4%
Total	97	51	148	100.0%

Table 2 Comparison of wards' ranked IMD score between attendances of patients not resulting and resulting in incidents

Type of attendance	Number of attendances	Ranking of wards by IMD score		
		Median	Upper quartile	Lower quartile
Attendances which did not result in a reported act of aggression or violence	113 099	116	67	156
Attendances which did result in a reported act of aggression or violence	156	160	124	171

IMD score, Index of Multiple Deprivation score. Total number of wards = 178.

aggressive incident in which the patient was an assailant. Table 2 shows that patients from Nottingham committing reported acts of aggression and violence tended to live in wards which were ranked as more deprived (the lower the rank, the more deprived the ward) (Mann-Whitney U, $p < 0.0001$).

Incident characteristics

In 114 (52.3%) of the 218 incidents, it was recorded in the incident report form or related medical records that the assailant was thought to be under the influence of alcohol. By comparison, these records indicated that the assailant was thought to be under the influence of illegal substances on only 11 (5.0%) occasions, although this may have been more difficult to recognise.

On 26 (11.9%) occasions, the incident report form included reference to waiting times as a possible contributory factor. In some cases the assailant was quoted as saying words to this effect but in other cases this was the interpretation of the staff member completing the report.

A review of the medical records found that 30 (13.8%) incidents involved assailants who had expressed suicidal ideation or had been referred to psychiatric services.

Nature of the incident

Table 3 demonstrates that verbal abuse was experienced in the vast majority of incidents and that many also involved threatening language or behaviour, that is, a verbal threat was made or a member of staff specifically described within the incident report that they felt under threat of physical violence. A total of 70 incidents involved members of staff being subjected to actual or attempted physical violence or assault. For example, incidents of punching, kicking, biting, scratching, and spitting were all described. Injuries were sustained on 18 occasions: there were 11 cuts or scratches, and five staff members were bruised, three sustained bite marks, and one had a dental cap loosened after being struck in the face.

Table 4 shows the results of the multivariate analysis investigating whether incident characteristics correlated with a description of the physical violence. These results demonstrate that physical violence occurred significantly less often during incidents in which waiting times were documented by staff to have been a contributory factor. By contrast, those incidents involving female assailants or patients expressing suicidal intent and/or warranting a referral to psychiatric

services described physical violence on a significantly more frequent basis. Similarly, when records indicated that the assailant was thought to be under the influence of drugs, the incident was more likely to have involved physical violence. There was no significant correlation between patient assailants or assailants being under the influence of alcohol and physical violence being described.

DISCUSSION

Although a large proportion of assailants in the current study were female, the results support previous research that found assailants were frequently young males.^{6,7} The principal novel findings of this study were that repeat offenders caused a considerable number of the reported incidents and that certain incident characteristics correlated with physical violence having been described. In addition, it was found that assailants tended to live in areas ranked as more deprived when compared with other patients.

Efforts were made during the design of the study to address the limitations of the existing evidence. The review of incident report forms considered a larger number of incidents and collected data relating to a greater number of variables when compared with previous research.

However, it should be recognised that there were weaknesses in the study design. Not all incidents will have been reported and this may be the case particularly for those that were less severe. In addition, incidents in which the assailant was a patient may have been more likely to be reported as the department can more easily identify and take action against patients. The most significant limitation was that the review was retrospective and, therefore, the information that could be collected was limited to that recorded on the standard hospital report form.

Although these findings may not be applicable to all emergency departments, there are important implications for practice. As with previous research, the role that alcohol may play in precipitating episodes of violence and aggression has been highlighted.^{6,9} Without being prompted to do so, staff recorded that they thought that the assailant was under the influence of alcohol or had been drinking in over half of the incidents reviewed. Furthermore, the finding that 7.5% of assailants committed more than 20% of the incidents during the study period serves to emphasise the need to have provisions in place at emergency departments in order to highlight repeat offenders. At the department in question, legal action has been pursued against a small number of persistent offenders in order to try and prevent future incidents.

Many questions about the causes and characteristics of aggressive incidents remain unanswered. For example, it is not clear why certain incident characteristics affected the likelihood of physical violence having occurred. In addition, the retrospective methodology meant that the causes of incidents could not be investigated beyond documenting the presence of certain factors identified as possible precipitants.

NICE guidance considers that a post-incident review should address what happened during the incident and identify trigger factors and the role of each person involved.¹⁰

Table 3 Frequency and percentage of incidents in which each category of aggression or violence occurred (from a total of 218 incidents)

Description	Frequency	Percentage
Verbal abuse	196	89.9%
Threatening language or behaviour	113	51.8%
Actual or attempted physical assault or violence	70	32.1%

Table 4 The effect of incident characteristics upon the likelihood of physical violence being described in the incident report (adjusted multiple logistic regression analysis)

	Number (%) of incidents	Odds ratio	95% confidence intervals		p value
			Lower	Upper	
Waiting times documented in incident report as a contributory factor by staff	26 (11.9%)	0.182	0.039	0.848	0.030
Assailant was female	81 (37.2%)	3.093	1.627	5.878	0.001
Assailant had expressed suicidal ideation or had been referred to psychiatric services	30 (13.8%)	3.079	1.291	7.342	0.011
Records indicated that assailant was thought to be under the influence of drugs	11 (5.0%)	4.559	1.151	18.058	0.031
Records indicated that assailant was thought to be under the influence of alcohol	114 (52.3%)	0.712	0.368	1.378	0.313
Assailant was a patient	196 (89.9%)	3.413	0.887	13.132	0.074

A prospective study using this template to review incidents may provide a valuable insight into the characteristics and causes of violence and aggression in the emergency department.

CONTRIBUTORS

All three authors conceived the aims of the study. Alex James designed the study, collected and analysed the data, and drafted the manuscript. Andrew Dove and Richard Madeley supervised the study and approved the manuscript. Alex James takes responsibility for overall content as guarantor.

ACKNOWLEDGEMENTS

We thank Jo Leonardi-Bee for advice on statistical issues, Richard Bowker for comments on earlier draft manuscripts, and Helen Woodward for help in retrieving incident reports.

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The University of Nottingham Medical School granted funding to facilitate research by the corresponding author (Alex James) necessary to fulfil the requirements of his Bachelor of Medical Science

undergraduate degree. The Medical School assigned a member of the faculty (Richard Madeley) to supervise the design and implementation of the study.

Competing interests: none declared

Ethical approval: ethical approval was sought and obtained from the Nottingham Research Ethics Committee (application reference number Q1070314)

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