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The use of restraint in four general hospital emergency departments in Australia

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Abstract

Objective: The purpose of this study was to investigate restraint use in Australian emergency departments (EDs).
Method: A retrospective audit of restraint incidents in four EDs (from 1 January 2010 to 31 December 2011).
Results: The restraint rate was 0.04% of total ED presentations. Males and females were involved in similar numbers of incidents. Over 90% of restrained patients had a mental illness diagnosis and were compulsorily hospitalised. Mechanical restraint with the use of soft shackles was the main method used. Restraint was enacted to prevent harm to self and/or others. Median incident duration was 2 hours 5 minutes.
Conclusions: In order to better integrate the needs of mental health clients, consideration is needed as to what improvements to procedures and the ED environment can be made. EDs should particularly focus on reducing restraint duration and the use of hard shackles.

Keywords: emergency department, mental health, seclusion, physical restraint, mechanical restraint

Despite significant debate regarding its use in psychiatric care, including renewed media scrutiny, restraint is still used in Australian health care settings to manage risk of harm and as a method for managing disturbed behaviour.[1,2] There are deleterious physical and psychological outcomes associated with restraint use, with the potential for asphyxiation and suffocation, aspiration, thrombosis and other harmful physiological reactions.[3,4] Patients often describe restraint as a form of punishment, and report it to be traumatic and to involve significant distress.[4]

One emerging issue is the use of restraint with patients presenting to the emergency department (ED) with psychiatric problems. Decreased inpatient beds and demand on outpatient psychiatric services in Australia and overseas are considered factors in increasing numbers of people with psychiatric and co-morbid conditions being treated in the ED.[5–8] An estimated 2.9% increase in mental health related ED occasions of service occurred from 2009–2010 to 2010–2011.[9] Previous Australian studies have identified a number of issues for patients presenting to EDs with mental health issues, including longer lengths of stay due to lack of psychiatric bed availability[7] and being less likely to be seen within recommended triage times in comparison to non-mental health patients.[10] ED environments may increase agitation for already distressed patients, and are often not equipped for patients at risk of harm.[6–8]

The use of restraint to manage risk in Australian EDs has been understudied. An investigation of Australian and New Zealand EDs reported estimates of restraint of 3.3 incidents

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Table 1. Restraint rates

Year	Restraint incidents (n)	Incident rate per mental health presentation[a]	Incident rate per total presentations[b]	Restrained patients (n)	Patient rate per mental health presentation[a]	Patient rates per total presentations[b]
2010	63	1.01	.05	48	0.77	.04
2011	81	0.93	.05	67	0.77	.04

[a]*n* restraint incidents/patients divided by *n* patients presenting to the emergency department (ED) with a mental health diagnosis.

[b]*n* restraint incidents/patients divided by *n* ED presentations.

per 1000 presentations.[11]A study of five Victorian EDs found that physical restraint was used with 4.1% of mental health presentations.[7] Examining prevalence of restraint and incident/patient characteristics will provide an understanding of current use and inform reduction efforts. This study examines the use of restraint in EDs in South Australia.

Method

Design

The study was a two-year retrospective audit (from 1 January 2010 to 31 December 2011) of restraint in four EDs located within the Adelaide metropolitan area. Three were situated within teaching hospitals classified as principal referral hospitals (bed numbers ranged from 308 to 874), and one was located within a hospital classified as a medium (group 1) hospital (80 beds).[12] Although one ED was located in a significantly smaller hospital, total ED presentations were approximately 11,000 more than the second largest hospital in the study. All EDs used mechanical restraint (restricting the patient's movement with devices such as shackles or belts) and physical/hands-on restraint by a staff member; only one ED had a seclusion room and used this form of restraint.

Data collection

An electronic form is used to document patient demographics (e.g. age, sex), date and time of restraint incident and checkboxes for the following: reason for restraint (prevention of harm to self, harm to others, destruction to property and an 'other' response with an open field); type of restraint used (mechanical, physical, seclusion); mechanical devices used; and body site. Also recorded are whether the restraint was applied during an episode of mental illness, which is completed as yes/no/unknown based on whether the patient is a known mental health client or on a mental health order, and whether the patient is on an involuntary order under mental health legislation. Data from paperwork completed at the time of the restraint is entered into a database by a staff member (usually a mental health nurse) after the restraint incident. Data was provided to the researchers in de-identified form.

Data analysis

Descriptive and inferential analyses were undertaken to investigate the number of restraint incidents and characteristics of these incidents/patients. One ED did not provide data in 2010 and another did not provide data in 2011. For some statistics reported, *n* is lower than total restraint incidents/patients due to missing values in the dataset.

Results

There were 144 restraint incidents in the four EDs, with 115 patients restrained at least once. This represents 0.97 incidents per 100 mental health presentations and 0.77 patients restrained per 100 mental health presentations (Table 1). Over the two-year period, 99 patients (86.09%) had one restraint incident, 12 had two restraints, two had three restraints and two had five or more restraints. These multiple restraints were enacted during the same presentation ($n = 12$ patients), separate presentations ($n = 3$) or a mixture of both ($n = 1$). There were differences between EDs in rates of restraint. Examining the two EDs that provided data for both years, 1.83 patients per 100 mental health presentations were restrained at the ED located at the smallest hospital and 0.48 patients per 100 mental health presentations at the third largest hospital.

Sixty-five (56.52%) restrained patients were male and 50 (43.48%) were female. Female patients were significantly older ($M = 36.92$, $SE = 1.90$) than male patients ($M = 32.02$, $SE = 1.43$), $t(113) = -2.10$, $p = .04$. Males and females were involved in similar numbers of incidents (males: $n = 70$ incidents, five males restrained twice; females: $n = 74$, 11 females restrained 2–10 times). The majority of patients had a diagnosis of mental illness ($n = 105$, 91.30%) and most ($n = 105$, 91.30%) were compulsorily hospitalised during at least one restraint incident.

The most common type used alone or in combination with other methods was mechanical restraint ($n = 133$,

Table 2. Type of restraint(s)

	Incidents	
Type	**(n)**	**(%)**
Mechanical	117	81.25
Seclusion	7	4.86
Physical	4	2.78
Mechanical, physical	13	9.03
Mechanical, seclusion	2	1.39
Mechanical, physical, seclusion	1	0.69
Total	144	100

Table 3. Body site(s) restrained

	Incidents	
Site	**(n)**	**(%)**
Arms/wrists, legs/ankles	111	83.46
Whole body	7	5.26
Arms/wrists, legs/ankles, upper body	3	2.26
Arms/wrists	3	2.26
Upper body	2	1.50
Arms/wrists, legs/ankles, lower body, upper body	1	0.75
Arms/wrists, upper body	1	0.75
Lower body, upper body	1	0.75
Missing	4	3.01
Total	133	100

92.36%). Seclusion was infrequently used in the ED with a seclusion room (Table 2). The devices used were soft shackles (n = 93, 70.37%), hard shackles/leather restraints (n = 35, 25.93%), jacket restraints (n = 2, 1.48%), lap belts (n = 1) and handcuffs (n = 1), with only one device used in all but two incidents. The methods were applied in the majority of cases to two body sites (n = 116, 87.22%) (Table 3).

Restraint was most frequently documented to prevent harm to self (n = 107, 74.31% of incidents had this as a reason), followed by harm to others (n = 105, 72.92%) and destruction to property (n = 68, 47.22%). In 52 incidents, all three reasons were selected. In 11 incidents, no reason was recorded.

The range of restraint duration was large (5 minutes–26 hours, n = 120) with a median of 2 hours 5 minutes (lower quartile = 1 hour, upper quartile = 4 hours 41 minutes). Of the 30 incidents (involving 24 patients) with duration higher than the upper quartile, 14 involved patients restrained more than once. Eight repeat patients were involved in these 14 incidents.

Males (*median* = 2 hours 17 minutes, n = 54) and females (*median* = 1 hour 27 minutes, n = 42) did not differ (statistically) significantly on duration of first or only restraint event. There was also no significant difference between younger (≤30, *median* = 2 hours 20 minutes, n = 44) and older (31+, *median* = one hour 17 minutes, n = 52) patients determined by median split on their first/only restraint event.

Three 2×2 χ^2 tests for independence were conducted to examine the association between gender and the following: prevention of (1) harm to self; (2) other harm; and (3) property destruction (all coded yes/no). Patients with multiple incidents were coded 'yes' for relevant analyses if restrained for that reason during *any* incident. The odds of a patient being restrained for prevention of harm to self were 3.91 times higher if they were female than if they were male, $\chi^2(1, N = 111) = 5.77$, $p = .02$. The odds of patients being restrained for prevention of other harm or property destruction were 2.27 (others) and 1.89 (property) times higher if they were male, *ns*.

Independent samples t-tests investigating age differences between patients restrained for the three reasons revealed that patients restrained to prevent property destruction (n = 64, M = 32.20, SE = 1.53) were younger than those restrained for other reasons (n = 49, M = 36.87, SE = 1.89), $t(109) = -1.94$, $p = .06$. Using median split, the odds of patients being restrained for prevention of property destruction were 2.20 times higher if they were aged ≤30 than if aged 31+, $\chi^2(1, N = 111) = 3.99$, $p = .05$.

Discussion

Rates of restraint were lower than those reported over five years ago in Victoria.[7] There were differences in restraint rates between sites, supporting previous research showing that restraint varies between organisations.[1,7] However, given only two EDs provided data for both years, there is the potential that some EDs are more stringent than others in data recording.

Gender differences emerged with female patients being older, more likely restrained to prevent harm to self, and more often restrained multiple times. These results may reflect ED patient demographics, staff perceptions of dangerous behaviours,[13] and/or gender differences in behaviours associated with restraint. The presence of a small number of particularly disturbed patients may also have influenced results.[14]

Restraint was most often recorded as being used to prevent harm to self, others and/or destruction to property. Most incidents involved mechanical and/or physical restraint, with limited use of seclusion. While seclusion has been posited as a less restrictive option than mechanical

restraint,[15] low levels of patient satisfaction and adverse effects associated with either method suggest the need for greater focus on other alternatives.

The large range in restraint duration is similar to that of Zun[16] (*M* = 4.8 hours; range = 0.2–25) and Knott et al. (*median* = 3 hours, interquartile range (IQR) = 60–360).[7] Prolonged restraint use is associated with increased potential for negative health outcomes.[3,4] The data do not provide reasons for these longer incidents. It is possible that patients were waiting to be seen by a psychiatrist or for an acute mental health unit bed.[7] Restraint using hard shackles was documented in three EDs. Draft state policy is in preparation regarding the use of hard shackles, with these measures not considered 'appropriate items to use for restraint purposes', with use in 'exceptional circumstances' undertaken with thorough risk assessment and multidisciplinary review.[17]

Most incidents involved patients with a recorded mental illness and compulsorily hospitalised for treatment. The documentation of approximately 9% of patients restrained who were not compulsorily hospitalised is concerning, although it may be that these patients were put under a mental health order subsequent to an emergency restraint. The data does not provide information on the experiences or subsequent referral of patients restrained in the settings. However, in the literature concerns are raised regarding whether a general ED setting is suitable for stabilisation and treatment.[6] The need for specialist training of general ED professionals and the presence of specialised mental health professionals is advocated.[6,18] Other alternatives to the general ED environment for patients in mental health crisis are psychiatric emergency centres or services. Such services have been demonstrated to be effective in reducing waiting time to psychiatric evaluation and reductions in seclusion and absconding have been shown.[19] Such a centre did not operate in the state during the data collection timeframe. General EDs should consider what improvements they can make to the existing environment (e.g. quiet areas) and procedures to better integrate the needs of acutely disturbed patients.[18]

This was a small retrospective study with information collected in the database minimal or recorded at a general level. The extent of compliance in completing the electronic form is unknown, and although underreporting is likely there is no current data in the services to assess this. The mental health diagnoses of patients restrained were also not collected. However, the study contributes to the need for examination in Australian settings.[11] Based on the results, EDs in the present study could focus on specific goals,[20] such as decreasing duration, repeat restraint incidents and eliminating the use of hard shackles.

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Disclosure

The authors report no conflict of interest. The authors alone are responsible for the content and writing of the paper.

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