Manual restraint of adult psychiatric inpatients: a literature review

Report from the Conflict and Containment Reduction Research Programme

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Levels of patient violence on psychiatric wards are high. It has been estimated that almost half of nursing staff and one in seven patients are subject to a physical assaults per year (Healthcare Commission 2007). Although the majority of such attacks result in little or no physical injury, psychological responses can be significant, with reports of consequent anger, anxiety, post-traumatic stress disorder symptoms, guilt, self-blame and shame (Needham et al. 2005). Manual restraint is a method of last resort for the management of violent or challenging behaviour, not least because of concerns expressed about the safety of patients under restraint (Blofeld et al. 2003; Paterson et al. 2003). Training courses for nursing staff on the prevention and management of violence and aggression, often referred to as ‘Control and Restraint’, are now mandatory for UK psychiatric service providers (National Institute for Mental Health in England 2004). However, there is a notable absence of any controlled studies to support the effectiveness of manual restraint techniques (Sailas & Fenton 2005).

In this review, manual restraint is defined as physically holding the patient to prevent or restrict movement. This is distinct from physical contact during the process of putting patients into mechanical restraints. As a consequence, much of the literature included in the review comes from the UK where mechanical restraint is rarely used. Despite a large literature on the nature of violent behaviour among psychiatric inpatient populations, there is little published data on the frequency of use of manual restraint in the UK, or the antecedents and consequences of manual restraint use beyond the immediate act of aggression or violence itself.

**Literature search**

This review was conducted in parallel with a review of mechanical restraint techniques. Electronic searches of the main databases were conducted to locate post-1960 empirical studies of restraint in English. The databases searched were: PsycInfo, Cochrane, Medline, EMBASE Psychiatry, CINAHL and the British Nursing Index. Key words utilised were restrain$, psych$ and mental$. Consistent with the aims of the review, the following thesaurus terms were excluded: child, eating disorder, diet, dementia and elderly. Resulting titles and abstracts were then inspected for relevance. Evaluations of aggression management techniques were included if they specifically concerned manual restraint, but studies of breakaway or self-defence techniques were excluded. The type of restraint (manual or mechanical) was not always apparent from the abstracts: where there was any ambiguity, the original was obtained and inspected. As the literature accumulated, further references were obtained by following up citations. The final number of identified empirical studies of manual restraint was 43. All but four studies were from the UK. The others were from Canada, Australia (two) and New Zealand.

**Methodologies of the studies reviewed**

Half (n=22) of the studies were retrospective analyses of official incident records, although this was sometimes supplemented with descriptive data from other sources. Nine studies used questionnaires or devised non-routine incident forms to collect data from nurses on aggressive incidents on wards and outcomes in terms of the use of restraint and other forms of containment. Four studies used a repeated measures design to measure the effectiveness of various aggression management training programmes. However, these assess the impact of training only in terms of
staff confidence and acquisition of skills to undertake restraint and do not measure the use of restraint pre and post the programme. Finally, the review includes five qualitative studies which describe staff and patient experiences of manual restraint and three case studies of death during restraint. The studies were conducted in various types of ward, ranging from acute wards (n=16), secure units (n=9), both acute wards and secure units (n=4), general adult wards (n=2), to a mix of wards (including several categories; n=9). Three studies did not specify the type of ward. Given the diversity of settings, it is likely that patient populations varied greatly between studies.

**Analytic procedure**

The aim of the literature review was to establish existing evidence for and against the working model and assess commonality and links between different conflict and containment types such as patient profiles, chains of events, patient experiences, circumstances of use, etc. A structured data extraction tool was created with various headings including sample, methodology, admission status, age, gender, ethnicity, ward type, service setting, risk status, time spent on ward, rates of restraint, antecedents/causes, patients’ views, staff views, etc. Where published papers provided empirical evidence, this was entered on the tool. The headings of the resultant matrix have then been summarised for the purposes of this review. A hierarchy of evidence was established to rate the weight of each study in relation to the project’s aims. The most weight was given to studies conducted in the UK, on acute wards and/or PICUs, studies with large samples and to findings replicated across studies.

**Incidence**

As most studies were small scale, local (based in specific hospitals) and were few in number, it is hard to draw any firm conclusions about the general extent of the use of restraint. Twenty-one studies reported the incidence of manual restraint: either as the number of episodes over a given time period (n=10) or as the proportion of responses to violent incidents on the ward (n=11).

For studies reporting the total number of restraint incidents, rates per 100 beds have been calculated where possible to aid comparisons. The rate of restraint use varied from: 9.3 per 100 beds per month (Ryan & Bowers 2006), 12.9 per 100 beds per month (Southcott & et al. 2002), 17.9 per 100 beds per month (Leggett & Silvester 2003) to 25.8 per 100 beds per month (Parkes 1996). Unadjusted rates showed much greater variation, illustrating the utility of presenting rates of restraint and other events on the wards in standardised form. It was not possible to calculate a standardised rate for five studies. The first reported an average of 18.9 restraint episodes per month across a mental health trust over a three year period (Lancaster et al. 2008). A survey of nurses asked respondents to estimate the frequency of restraint use on their wards, providing an average of 3.1 per month (Wright et al. 2005). A 2005 census of inpatients in England and Wales found that 8% had at least one episode of control and restraint during their current stay (Healthcare Commission 2005). Subsequent reports in 2006, 2007 and 2008 showed rates of 8%, 11% and 12% respectively. A higher
rate (18%) was reported by a study of 12 acute wards, although the sample was restricted to patients admitted for at least two weeks (Bowers et al. 2003).

Other studies have used violent or aggressive incident reports as the basis for analysis, which may not include all restraint episodes (see antecedents and circumstances section below). Nevertheless, the proportion of violent incidents which resulted in restraint varied markedly, with some studies in forensic settings reporting very high level of restraint. Rates varied from: 12% (Torpy & Hall 1993), 22% (Parkes 2003), 23% (Southcott & Howard 2007b), 26% (Tobin, Lim, & Falkowshi 1991), 36% (Duff, Gray, & Brostor 1996); Kennedy et al 1995, 38% (Shepherd & Lavender 1999), 57% (Dowson, Butler, & Williams 1999) to 67% in a medium secure unit (Gudjonsson, Rabe-Hesketh, & Wilson 2000) and 76% in a special hospital for dangerous offenders (Larkin, Silvester, & Jones 1988).

One important issue is the extent to which patients are repeatedly restrained. Few studies recorded repeated restraint episodes which occurred for the same patients, usually because the main focus of the research was the incidence of aggressive or violent behaviour rather than its management. In only two cases was it possible to extract or calculate a mean rate of restraint use per patient. Lancaster et al. ’s (2008) study of 680 incidents of physical restraint reported the average number of restraints per restrained patient as 2.6 (with a maximum of 33 for a single patient). Data from Leggett and Silvester (2003) suggest a mean of 4.9 separate incidents of restraint per restrained patient. Another study reported that 15% of restrained patients had been subject to more than one episode of restraint (Smith AD & Humphreys M 1997). The lack of information on repeatedly restrained patients makes it difficult to interpret the prevalence of manual restraint as there may be particular sub-groups of patients whose behaviour makes them more likely to be restrained.

Information on the duration of restraint episodes was also sparse: only three studies reported an average duration of restraint. A study of 557 restraint incident forms over a four year period showed an average duration of 12 minutes (Leggett & Silvester 2003). Riley et al. (2006) compared the average duration of restraint in the supine (patient on the floor on their back) and prone condition (patient on the floor on their front) and found both to be 10 minutes, whilst a comparison of horizontal and vertical (standing, sitting or kneeling) positions found a mean of 10 minutes for the former and 5 minutes for the latter (Whittington et al. 2006).

**Restraint techniques**

Three papers using the same data-source specifically examined the use of different restraint positions (Lancaster, Whittington, Lane, & Riley 2008;Riley et al. 2006;Whittington, Lancaster, Meehan, Lane, & Riley 2006). Of the 680 reported incidents of restraint, the majority (58%) were in the horizontal position (Lancaster, Whittington, Lane, & Riley 2008). When analysis was restricted to the first restraint episode for each patient (n=261) the proportion restrained in the horizontal position was slightly higher (62%). Among incidents involving horizontal restraint, the majority were in the prone position as opposed to the supine position (56% vs 44%);
Two national surveys asked psychiatric nurses which restraint techniques they use most frequently. The first (Lee et al. 2001) found that restraining holds the three-person teams were as frequently used as verbal de-escalation (reflecting the prominence of these techniques in training). Wright et al., (2005) found that 31% of nurses reported that the restraining hold was used on their ward, 24% the three-person team and 21% taking the patient to the floor in the prone position. The difference between the two studies in the proportion of nurses using these restraint techniques may reflect the way the questions used in the survey. Lee et al. (2001) explicitly asked respondents about the techniques they personally use, while Wright et al. (2005) asked about the techniques used on respondents' wards. Differences may also reflect the nature of the survey samples. Lee et al.'s study was confined to staff from PICUs and Regional Secure Units, whilst Wright et al. sampled from all acute inpatient psychiatric services. Another study found that high levels of staff satisfaction with their ability to put restraint techniques into practice (Southcott & Howard 2007a). When patients are taken down to the floor nurses reported that this was in a controlled manor in the majority (84%) of cases and that physical holds were usually successfully established and maintained (93% of cases).

Antecedents and circumstances of manual restraint

Eight studies reported the antecedents of restraint use. As might be expected, a commonly cited reason for restraint was violent or aggressive behaviour. However, these studies consistently identified a variety of antecedents to restraint including attempts to abscond (Bowers et al. 2003; Gudjonsson et al 2004; Ryan and Bowers 2006; Smith and Humphreys 1997; Southcott et al., 2002), disruptive behaviour (Ryan and Bowers 2006; Smith and Humphreys 1997), agitation (Gudjonsson et al 2004), verbal assault/threat (Duff et al 1996; Southcott et al., 2002; Smith and Humphreys 1997), refusal of medication (Bowers et al. 2003; Gudjonsson et al 2004; Ryan and Bowers 2006; Southcott et al., 2002), self-harm (Smith and Humphreys 1997; Southcott et al., 2002), and property damage (Ryan and Bowers 2006; Smith and Humphreys 1997). A study of restraint request forms found that violence was rarely mentioned as a cause for restraint; more general challenging behaviour was the most frequently cited reason (Ryan and Bowers, 2006). Over half (52%) of restraint requests were classified as an emergency response (e.g. to an attempted abscond) while 48% were classified as planned following patients’ refusal to comply with instructions. One study reported that restraint was initiated following assaults on staff (29% of cases), but other reasons were not reported (Parkes, 1996) while another found restraint (as opposed to counselling or medication) to be more likely when some form of ‘staff-patient interaction’ was involved (Tobin et al 1991). Qualitative interviews with staff have identified a poor ward atmosphere and failed communication between staff and patients as antecedents for restraint (Bonner et al 2002).

The most rigorous paper involved a multivariate analysis of 1,515 untoward incident forms (excluding self-harm and suicide attempts) on general psychiatric wards.
recorded over a three year period (Gudjonsson et al., 2004). The most frequent antecedents recorded on the forms were agitation (32%), specific interaction with patients or staff (24%), staff refusal of patient's request or patient's refusal to take medication (16%) and attempted abscond (7%). When other variables (e.g. patient characteristics) were controlled for, the use of manual restraint to manage incidents was predicted by attempts to abscond, staff denying a request and the patient being rated as agitated. A nurse being the target of assault was also associated with an increased likelihood of restraint.

It is interesting that some of the least frequent antecedents identified on incident forms were the strongest predictors of restraint in the statistical model. This suggests that studies which simply provide a descriptive account of officially recorded reasons for incidents need to be interpreted with caution. Causes identified on incident forms are not necessarily the same factors which determine the management approach to an incident. Gudjonsson et al (2000, 2004) and Shepherd and Lavender (1999) found that incidents rated as being more serious (usually involving violence or injury) increased the probability of restraint. There is also evidence that restraint is more likely to be used if the target of violence is a staff member as opposed to other patients, self or property (Tobin et al 1991; Parkes 2003).

The decision to manage an untoward incident with restraint can be influenced by aspects of staff-patient interaction which are not usually recorded. For example, some studies suggest that the type of restraint used varies by the way nurses perceive the cause of an incident. Patients’ refusal to communicate has been associated with the use of the supine position and the threat of imminent violence with the prone position (Riley et al., 2006). Another study used multivariate techniques to identify factors associated with restraining patients on the floor (versus standing or sitting; Whittington et al., 2006). This position was more likely if patients were formally detained, had self harmed, had unclear thoughts prior to an incident and increased voice volume, but was negatively associated with age, perceived causes such as bad news and personal gain, and where there were no obvious warning signs before the incident.

**Outcomes of manual restraint**

Two main outcomes are identified in the review: injuries (to staff or patients) and use of other containment methods.

**Injuries**

Manual restraint carries a risk of injury for both patients and staff. In the most severe cases this has involved the death of patients. Two case studies (Morrison and Sadler, 2001; Patterson and Leadbetter, 1998) describe the circumstances of deaths resulting from positional asphyxia during manual restraint. Prolonged use of restraint in the prone position was also implicated in the David Bennett inquiry (Blofeld et al 2003). Patterson et al (2003) identified 12 cases of patient deaths during restraint between 1979 and 2000 across a range of UK health and social care settings and concluded that downwards pressure on the chest to hold a patient in the prone position should be avoided. The study also highlights other factors such as physical conditions, substance use and prescription of neuroleptic drugs which may heighten the risks associated with restraint use for some patients.
Non-fatal injuries during restraint tend to be more common among staff than patients. The proportion of restraint episodes resulting in staff injuries ranged from 12% (Southcott and Howard, 2007); 17% (Riley et al., 2006; Lancaster et al, 2008); 19% (Parkes, 1996; Leggett & Silvester, 2003; Parkes, 2003); to 40% (Dowson et al., 1999). The proportion of restraint episodes resulting in injuries to patients ranged from 5% (Southcott and Howard, 2007); 6% (Riley et al., 2006; Lancaster et al., 2008); 7% (Dowson et al., 1999); 10% (Parkes, 1996); to 18% (Leggett & Silvester, 2003). One survey of nurses found that 13% reported patient injuries during the last occasion they were involved in the use of restraint, but 22% reported staff injuries and that injuries sustained by staff were generally more serious that those sustained by patients (Lee et al 2003). Indeed, Harris and Rice (1986) found that staff lost more days on average for injuries that occurred during restraints than for injuries that occurred during assaults. The likelihood of injuries occurring may also depend upon the nature of the incident preceding the use of restraint. A multivariate analysis of 680 restraint episodes showed the risk of staff injury was increased when an assault had taken place, but patient injuries were more likely if the patient had self-harmed, used substances or used a weapon prior to restraint (Lancaster et al, 2008).

Despite the risk of death associated with restraining patients face down, from the evidence available to this review there appears to be no significant difference in the prevalence of staff or patient injuries by whether patients are restrained on the floor in the supine or prone position (Riley et al., 2006). However, there is a slightly greater risk of staff injury when restraining a patient in the prone position compared to the standing position (Lancaster et al., 2008).

**Other containment methods**
Restraint was often followed by the use of other containment methods, usually medication and less frequently by seclusion. Ryan and Bowers (2006) reported that half (51%) of nurses’ requests to restrain patients resulted in the patient receiving medication and 17% resulted in seclusion, although the study does not report rates for actual restraint episodes. A study of 2,180 violent incident forms found that restrained patients were sedated on 44% of occasions compared to a fifth of cases where restraint was not used (Gudjonsson et al., 2000). Similarly, Shepherd and Lavender reported that 41% of restraint episodes also involved use of medication and 4% resulted in seclusion. Other studies report that restraint episodes involved the seclusion of patients in 10% (Leggett and Silvester 2003) and 13% (Parkes, 1996) of cases. Riley et al (2006) found that patients restrained in the prone position were more likely to be subject to high intensity observation after restraint than those in the supine position. The authors acknowledge that this finding is difficult to explain, but suggest that staff would find it more difficult to judge patients’ reactions to verbal interventions whilst in the face down position. Although not directly comparable to these studies, 12% of nurses surveyed from regional secure and psychiatric intensive care units reported that the restraint incident in which they were last involved required additional measures such as seclusion and medication were also used (Lee et al 2003).

**Characteristics of restrained patients**
The characteristics of patients subject to restraint were generally poorly reported. It is particularly difficult to interpret studies which report the characteristics of restrained
patients only, since it is not known how these patients’ characteristics differ from those who were not restrained.

**Age**
Three studies of restrained patients report an average age of 31 (Leggett and Silvester 2003), 33 (Smith and Humphreys 1997) and 37 (Lancaster et al 2008). Older patients are less likely to be restrained in a horizontal position (Whittington et al 2006).

**Gender**
Two studies reporting the gender of restrained patients found a greater proportion to be male: 94% male (Duff et al 1996); 55% male (Lancaster et al 2008). Males also comprised the majority (65%) of restraint requests (Ryan and Bowers 2006). In one study, 77% of restrained patients were male, but comparatively more females (43%) than males (31%) admitted during the study period were subject to restraint, although this difference did not achieve statistical significance (Leggett and Silvester 2003). On balance, therefore, more males than females may be subject to restraint, although the quality of the evidence is weak.

**Ethnicity**
There is no consistent evidence that particular ethnic groups are more likely to be restrained. Three studies found no association between ethnicity and the use of restraint (Gudjonsson et al 2000, 2004; Duff et al 1996). The latter study reported that 64% of restraint episodes involved Afro-Caribbean patients, but the same proportion of patients from this ethnic group comprised the study sample of serious violent incidents. Another study reported that 22% of restraint episodes involved patients from an ethnic minority group and that this proportion was similar for men and women (Lancaster et al 2008).

The ‘Count Me In’ census reports provide conflicting evidence of ethnic differences. In 2005, control and restraint among Black Caribbean men was 29% higher than the average rate for all inpatients. In 2006, inpatients from the White/Black Caribbean Mixed group were more likely than average to experience restraint, but there were no ethnic differences among either men or women reported in 2007. In 2008, patients in the Other White and White/Black Caribbean Mixed groups had a higher than average rate of restraint (29% and 34% respectively).

**Legal**
Studies of patients in secure units, where most if not all patients are formally detained, are excluded from this section. Among studies which reported the legal status of patients there was a consistent finding that restrained patients were usually formally detained. The proportion ranged from 82% (Duff et al 1996; Lancaster et al 2008) to 94% (Smith and Humphreys 1997). Ryan and Bowers (2006) reported a lower rate (65%) for restraint requests, but did not provide data for patients who were actually restrained. There is also evidence that patients are more likely to be restrained if on a civil rather than criminal section (Gudjonsson et al 2000, 2004).

**Diagnosis**
Assessment of the relationship between restraint and diagnosis is made difficult by the use of differing terminology and diagnostic systems between studies and variations in
the types of psychiatric services and their populations. Two studies report schizophrenia to be the most common diagnosis for restrained patients (57%, Duff et al. 1996; 60% Smith and Humphreys 1997). Lancaster et al.’s (2008) study of 680 restraint episodes provides a more diverse range of diagnoses: schizophrenia (33%), mania and excited psychosis (20%), paranoia and acute psychotic reaction (17%), acute reaction and personality disorder (11%) and substance related or other (18%). Where the relationship between diagnosis and restraint had been analysed statistically no significant association was found (Gudjonsson et al 2004; Tobin et al 1991).

Length of stay
Only one study reported the length of stay for restrained patients (Smith and Humphreys 1997). Half of restraint episodes involved patients who had been on the wards for at least 3 weeks but half of the remaining episodes were for patients who had been in hospital for less than 24 hours.

Other
Information on restrained patients’ marital status, employment, living arrangements, educational qualifications and forensic history was not reported by any study.

Staff and patient experiences of manual restraint

This section deals specifically with the direct experience of restraint from the perspective of staff (mostly nurses) and patients. The implications for staff training are explored in the next section.

Staff
The most comprehensive study involved a postal questionnaire survey of 269 nurses in regional secure and psychiatric intensive care units in England and Wales concerning their last experience of using control and restraint (Lee et al 2003). Most nurses (96%) reported positive outcomes of the restraint, but some negative aspects of restraint (and of colleagues’ attitudes) were identified and alternatives suggested. A quarter or respondents expressed concerns about the impact on patients (e.g. relationships with nursing staff, while some found the experience of restraint demeaning and stressful. Organisational factors included the poor management of restraint procedures, lack of monitoring and under-staffing. There were also doubts about some of the techniques used (e.g. joint locks which induce pain to gain compliance) and the impact restraint has on other patients. Most (70%) staff reported de-briefing after the incident.

These findings are generally consistent with qualitative studies which suggest that nurses view restraint as a necessary part of their job, but one they would like to minimise (Bigwood and Crowe 2008; Bonner et al. 2002). Anxiety about getting hurt and distress in implementing restraint were common themes (Bigwood and Crowe 2008; Bonner et al 2002; Sequira and Halstead 2004) reflecting a sense of conflict with the therapeutic nursing role. One study found that nurses were reluctant or unable to express their feelings following an episode of restraint, but that these emotional responses diminished with greater experience of implementing restraint (Sequira and Halstead 2004). Psychiatric nurses may be more willing to intervene in aggressive incidents than their general nursing counterparts (Duxbury, 1999). The positive benefits of debriefing after restraint episodes have also been acknowledged
(Bonner et al 2002). The use of seclusion after restraint has been linked to staff perceiving patients to have control over the cause of the incident (Leggett and Silvester 2003). The same study found that staff felt less control over incidents with frequently restrained patients.

**Patients**

Less research is available on patients’ experiences of restraint. Two small qualitative studies report a total of 20 patients’ experiences views of restraint (Bonner et al 2002; Sequeira and Halstead 2002). Both found predominantly negative experiences including feelings of anger, fear and panic. Patients said they felt ignored prior to the incident and that their behaviour had not warranted the use of restraint. There was also a consensus that restraint risked reawakening memories of previous distressing or abusive events.

**Staff training in restraint techniques**

A survey of 33 violence management policies from Trusts across England and Wales found that almost all specified physical restraint as a means of managing violence and more than half that restraint should used as a last resort (Wright et al 2000). There was more ambiguity about the role of untrained staff and the level of force permissible. Less than half the policies set out when restraint would be justified, unacceptable methods of restraint, checking for weapons before restraint and the dignity of the patient during restraint.

Surveys of psychiatric nurses’ training suggest gaps in training provision, particularly for techniques that might be used to avoid recourse to restraint, and that skills for managing conflict are not updated regularly enough. Wright et al (2005) reported that while most (77%) had received training in restraint techniques and some refresher training during their current post, many had to wait several months before receiving it. On the whole, nurses were not confident of applying restraint techniques or resolving incidents without restraint. Lee et al.’s (2001) survey of PICU and secure unit staff also found some who had been in post several for months before receiving training. Assuming that the dozen most frequently taught C&R techniques constitute a ‘core curriculum’, less than two fifths of nurses had been trained in all core techniques. A lack of training in safety and ethical issues was also highlighted. Another survey of PICU staff also found that although the majority of staff identified management of aggression and violence as their primary training need, it was felt that this should include areas such as de-escalation, debriefing and seclusion as well as restraint (Clinton et al., 2001).

There is some qualitative evidence that despite general satisfaction with their training, staff are not always adequately prepared for de-escalating situations and dealing with the most common forms of assaults such as punches and kicks (Southcott et al 2002). Staff also reported having problems in taking patients to the floor and initial establishment of holds. This is consistent with a study of Australian wards in which some staff found restraint techniques complex and the training difficult to put into practice, although aggression management training was the most commonly reported factor giving clinicians confidence in dealing with patient aggression (Martin and Daffern 2006).
The effectiveness of restraint training had been assessed by a number of studies which measured staff skills and or confidence before and after participation in a training programme. Paterson et al (1992) evaluated a 10-day in-service education course in the management of violence and found significant improvements in knowledge, stress, role ambiguity, and de-escalation and control and restraint skills, but not job satisfaction. A survey of staff from three Australian psychiatric intensive care wards measured staff confidence in dealing with aggressive patients (McGowan et al 1999). At one, the survey was repeated six months after staff completed a safe physical restraint training module. Staff at the other two wards had received regular training. The survey showed that staff confidence at these two wards was higher than pre-training levels at the third. Following the training module, staff at the third hospital showed a significant increase in confidence.

One study found that C&R training increased the modal number of staff required to undertake restraints from two to three (a three staff team was emphasised in the training), but perhaps as a consequence there was also an increase in staff injuries during restraint (Parkes, 1996). Increasing the numbers of staff trained in C&R, to the point when a team of three is available at all times, has been associated with a reduction in the number and severity of violent incidents, although where incidents did occur there was a tendency for patients to attack each other rather than nurses (Mortimer, 1995).

Evidence for and against the working model
None of the reviewed studies provides evidence to support the working model. The potential role of organisational support is a logical conclusion to some studies (e.g. post-incident reviews for staff and patients) but is not explicitly explored. Although the need for timely and comprehensive staff training in violence and aggression management is often stated, the impact of training on the use of restraint and other forms of containment has not been assessed. Instead, studies rely on measuring the confidence and skills of staff following training. It is to be expected that staff feel more confident after recent training, but it is much less clear how long this confidence or improved competence lasts. In the absence of supporting data, it cannot be assumed that improved training would reduce the incidence of restraint. It is equally plausible that better trained staff would simply be more confident and able to restrain patients safely. Increased familiarity with restraint techniques can lead to intransigence or a hardening of attitudes towards the practice among some staff (Sequeira and Halstead, 2004). More experienced staff may be more ready to intervene or more willing to touch the patient first and less inclined to talk an agitated patient down (Harris and Rice, 1986).

The subjective experience of staff is rarely reported in detail, but qualitative research illustrates how difficult emotional regulation can be for some staff. One study in particular found that some were unable to express their feelings following a restraint episode and that this may contribute to less appropriate coping strategies such as laughter after the restraint event, which patients find offensive (Sequeira and Halstead, 2004). The study also reported staff anger when the same patients were frequently restrained. Staff perceived these patients to be deliberately bringing about a restraint episode. Similarly, Bigwood and Crowe (2008) report that nurses’ participation in restraint made their jobs more difficult and reduced job satisfaction, but they felt less conflict with their therapeutic role if satisfied that other options had
been properly explored before the use of restraint. These studies do not explain how greater emotional regulation might translate into reduced use of restraint or other containment methods to manage conflict.

**Points the model has missed**

Whether or not restraint is used may depend upon how staff use certain cues (e.g. agitation and threat of violence) to decide how best to manage the patient (Gudjonsson et al 2004). However, it is not clear which patient behaviours are associated with particular staff responses and how they are interpreted by staff. For example, interactions preceding the incident such as refusing a request may also be important in determining what emergency actions will be taken. Staff may use seclusion punitively as a means of regaining a feeling of control after a restraint episode, but use help giving strategies when patients are perceived to have less control over their circumstances (Leggett and Silvester, 2003). The decision to restrain a patient on the floor seems to be associated with staff perceptions of an imminent threat, perhaps based upon fear or a need to regain control (Whittington et al 2006).

There is also evidence that the choice of restraint technique may be influenced by situational factors. An association between restraint in the prone position and a warning of imminent violence may reflect staff having the opportunity to approach the patient from the front and to attempt to de-escalate the situation face-to-face, prior to the use of restraint which would be initiated from the front in the interests of patient safety (Riley et al., 2006).

Patient variables were generally not associated with restraint, but gender appears to have some bearing on staff-patient interactions concerning restraint. Leggett and Silvester (2003) found use of medication following restraint to be associated with staff attributing behaviour among male patients as uncontrollable. Female patients were more likely to be secluded and less likely to receive medication, but staff had more difficulty explaining the reasons for restraint episodes involving female patients. Harris and Rice (1986) found that restraint episodes resulting in staff absence due to injury were more likely to involve male staff and patients. The authors suggest that male staff were more likely to initiate restraint or to be sought when restraint was being planned, and female were patients less likely to need restraint. Although this study provided no evidence to support this, others have reported male nurses to be more willing to contribute to the restraint of an aggressive patient (Martin and Daffern, 2006) and females to feel that restraint conflicts with their role as a nurse (Sequeira and Halstead, 2004). One qualitative study found female patients who were restrained by female staff expressed feelings of comfort or safety associated with restraint, to the extent that they deliberately behaved ways which might provoke the use of restraint (Sequeira and Halstead, 2002). These findings require cautious interpretation, since the larger quantitative studies in this review show no association between gender and restraint. This may reflect obvious differences in research questions (prevalence vs staff-patient interactions), but also that when a range of possible factors are considered together gender is of much less importance.

**Discussion**
Summary
Given the prevalence of manual restraint use across inpatient psychiatric services the lack of data on this practice is striking. Even simple information about the frequency, duration and reasons for restraint is hard to find. On the whole, it is difficult to draw many conclusions about the use of restraint because the small number of studies included cover a wide range of services treating diverse populations. The data suggests that on an average 20 bed ward there might be between two and five restraint episodes per month, with forensic services at the higher end of this range. Restraint is not confined to the management of violent incidents, but is used to in response to a range of patient behaviours. Whether staff are the target of assault and the legal status of patients are also factors associated with restraint use. Restraint frequently precedes sedation of patients (in around 40% of restraint episodes), but seclusion is used less often. Staff value training in C&R techniques, not least because of the risk of injury associated with violent incidents as well as the use of restraint. However, training is not always timely and does not adequately cover safety and ethical issues. The impact of training on levels of restraint use has not been evaluated. The extent to which staff attitudes influence the decision to use restraint is uncertain. There was some consistency across the qualitative studies that contextual factors play a role in the management of incidents. Staff may empathise with patients who are frustrated with the ward environment and consequently use less coercive interventions because they feel able to communicate with the patient. In other circumstances, staff may find it more difficult to negotiate with patients and resort to the use of restraint and/or other containment methods.

Lessons for future research
There is an assumption in much of the literature, sometimes implicit in the research design, that restraint is simply used to manage violent incidents. As this review has shown, some of the more robust studies point to a range of behaviours and factors associated with the use of restraint such as attempts to abscond, agitation, refusal to comply with instructions, the target of assault and legal status. The range of antecedents to restraint lead Ryan and Bowers (2006) to conclude that manual restraint is not associated with violence, but the enforcement of detention and treatment of patients.

A large proportion of the studies in the review used officially recorded data on untoward incidents and the use of restraint. However, one study showed that the recording of basic information about incidents was often omitted or inadequate (Dowson et al 1999). This can have a detrimental effect on the management of violence as failure to record incidents thoroughly means that information needed to review processes and resources and assess high risk situations will be missed. The potential for missing data and under-reporting means that results based upon officially recorded data should be treated with caution. Other influences such as the concerns of managers and changes in national and local policy may also undermine the reliability and validity of the data. The diverse factors found to be associated with restraint identified in the review suggest that future studies of official data should use multivariate analysis wherever possible in order to avoid potentially misleading conclusions based upon simple counts of events or antecedents. Bespoke data collection instruments which capture more detailed information about the management of incidents than currently available through official means would also
be welcomed. For example, it would be helpful to have more data on the timing of events leading up to a restraint episode. Of course, these come with their own problems and complications, especially the additional burden often placed on staff to assist data collection.

Relatively few studies were specifically focused on restraint; most concerned topics such as violent incidents or staff training. Again, this probably reflects the availability of official data and all the limitations this implies. Yet, as this review has highlighted, studies based upon restraint following violent incidents are not a reliable indicator of the prevalence of the practice. A better sense of how restraint is used in response to different types of incident and in different service settings is required. A more thorough analysis of repeatedly restrained patients should also be a priority. It is not at all clear how these individuals skew the available prevalence data or how the circumstances of restraint episodes differ from other patients.

Now that prevention and management of violence and aggression training is mandatory, there is a need for it to be properly evaluated. This necessarily means measuring the impact of training on violent incidents and nursing responses to it. Staff confidence and skills are important, but the literature does not offer much information about how these have been put into practice. Whilst there is some tentative evidence of a relationship between C&R training and reduced violence (Mortimer 1995), more research is required to conclusively demonstrate such a link, and it cannot be assumed that reduced violence would be mirrored by similar reductions in episodes of restraint.

References


National Institute for Mental Health in England (2004). *Mental Health Policy Implementation Guide. Developing Positive Practice to Support the Safe and*
Therapeutic Management of Aggression and Violence in Mental Health In-patient Settings. Department of Health, Leeds.


