The City 128 Study of Observation and Outcomes on Acute Psychiatric Wards

Research Report

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prepared by

Len Bowers

- Department of Mental Health and Learning Disability, City University

Richard Whittington

- University of Liverpool

Peter Nolan

- Staffordshire University

David Parkin

- City University

Sarah Curtis

- Queen Mary Westfield College, University of London

Kam Bhui

- Queen Mary Westfield College, University of London

Diane Hackney

- Independent User Consultant

Teresa Allan

- City University

Alan Simpson

- City University

Chris Flood

- City University

Address for correspondence

Len Bowers

Department of Mental Health and Learning Disability

City University

London E1 2EA

E-mail: l.bowers@city.ac.uk

Contents

Executive Summary

Background

Special observation is one means by which psychiatric professionals seek to prevent acutely disturbed inpatients from harming themselves or others. Its use is interdependent with other containment methods, (e.g. seclusion, sedation, door locking, removal of sharp items from patients) employed for the same purposes. Rates of difficult behaviour on acute wards, and rates of use of containment methods, vary widely. Previous research indicates that conflict behaviours, (e.g. self harm, absconding, aggression) run together, and may be more likely to occur on wards with negative staff attitudes towards difficult patients, poor leadership, teamwork, and structure.

Aims

- The aims of the study were as follows.
- To examine the link between special observation and self-harm in the context of other containment methods and conflict behaviours, controlling for the potential confounding effects of patient characteristics and environment quality.
- To conduct an economic analysis of the cost of conflict and containment, incorporating special observation and self-harm.
- To compare patients' and staff's judgements on the relative acceptability and safety of containment methods.
- To explore acute inpatients' feelings of safety and security.

Methods

Six months data was collected from a random sample of 136 acute psychiatric wards in the vicinity of three research centres, via the use of end of shift reports by nurses, and the completion of a number of standard questionnaires. More than 46,000 end of shift reports were collected during the study. The resulting data was analysed using logistic multilevel modelling, with shifts nested within wards, nested within NHS Trusts.

Experienced senior nursing personnel from a random sample of fifteen wards were interviewed to determine resources used in terms of staff time in dealing with conflict and containment incidents. The average time taken to manage conflict and containment variables was determined, and national reference and unit costs for staff applied. An average cost for each conflict and containment variable was then established. Conflict and containment frequencies from the 136 ward sample were then applied to these annual costs per year per ward. A total national cost was then calculated, based on all of England's adult acute psychiatric wards.

A questionnaire survey was undertaken to compare evaluations of containment measures by patients and staff on each participating ward. The Attitude to Containment Measures Questionnaire elicits views on the safety, acceptability and efficacy of 11 different containment measures, from PRN medication through to mechanical restraint. It was completed by over a thousand patients, and a thousand staff, and results were analysed using multi-way ANOVA.

A smaller random sample of 60 patients participated in an interview (designed by service users) to elicit their feelings about safety and security in inpatient areas. These were transcribed and submitted to thematic analysis.

Findings

Multilevel models of ward self-harm rates

The use of intermittent observation was inversely correlated with self-harm, whereas constant special observation, whether that was accompanied with engagement or not, had no relationship to self-harm rates.

Positive associations were found between self-harm and some other containment measures, as well as with the locking of the ward door. However, the direction of causality cannot be finally determined using this study design.

No association was found between self-harm rates and the intensity of any common ward safety and security measure, e.g. banned items, restrictions on inpatients, searching of property, drug and alcohol monitoring, etc.

A large proportion of the variance between wards and Trusts in self-harm rates was accounted for by the types of patients admitted, the localities they serve, and the throughput of patients. Of these patient features, the most striking associations were with: (a) Caribbean ethnicity, and (b) the throughput of admissions.

The findings do not support a strong role for staff factors in the determination of self-harm rates on wards, and no association was found with leadership, team functioning, attitude to patients, burnout or ward atmosphere. However, the presence of qualified nursing staff and the provision of patient activity sessions were both associated with lower rates of self-harm.

Typology of wards

Although factor analysis proved superior in terms of interpretability, neither factor nor cluster analysis produced mathematically robust structures underlying this dataset. Significant variance was found by NHS Trust for the results of both analyses.

Cluster analysis identified three clusters: (i) high on security measures and door locking, low-medium on other containment methods, medium conflict levels and high self-harm; (ii) low on security, door locking and other containment measures, low on conflict of all types, including self-harm; (iii) inconsistent levels of security measures, high use of containment measures, high rates of conflict but low rates of self-harm.

Factor analysis revealed five factors: (i) most conflict events, with the notable exceptions of self-harm, drug and alcohol use, and actual absconding, and the majority of containment methods, excluding special observation; (ii) the use of drugs and alcohol, and absconding; (iii) most security policies, without any conflict or other containment items; (iv) lower rule breaking with less door locking, higher alarms, searching, and drug/alcohol monitoring and testing; (v) high levels of both types of special observation and lower levels of self-harm.

Patient and staff attitudes to containment measures

There was evidence of strong disapproval amongst both staff and patients with regard to mechanical restraint. Attitudes toward other existing measures did not differ hugely between the two groups although, overall, patients tended to be more disapproving than staff.

Patients tended to be more homogenous in their views than staff in that there were fewer age or gender differences within this sub-sample. The staff responses varied according to both gender and age with females and older staff tending to disapprove more strongly of containment.

Personal experience was associated with some heterogeneity in the patient group. Exposure to 'gentler' measures, e.g. observation, enhanced approval and, conversely, exposure to 'harsher' measures, e.g. IM medication, led to stronger rejection of the measure.

Staff reported greater approval of those techniques they had used in their practice.

Economic analysis

The estimated annual mean staff time cost per ward for conflict was £145,177. The estimated annual mean staff time cost for containment was approximately £212,316.

The total estimated mean annual costs for all conflict behaviours across all of England's inpatient psychiatric wards exceeds £72.5 million per annum, whilst for containment the total estimated cost is £106 million per annum.

The mean cost per ward of self-harm was £8,176 per annum, with a total national cost for all of England's inpatient wards amounting to £4 million. The related containment procedures of intermittent and special observation reflect total national costs of £45 million and £35 million respectively.

The singularly most expensive conflict behaviour to manage was verbal abuse, with a mean cost of per ward per annum of £21.1k, £10.6 million national costs per annum, due to the amount of staff time taken up. The most expensive containment measure was intermittent special observation, £45 million per annum nationally.

Inpatient fears and anxieties

Patients who were seeking stability or solace were easily upset by untoward events taking place around them, e.g. shouting, fighting, stealing or illicit substances being brought onto the ward. The greatest day-to-day irritation was petty thieving. However, two-thirds felt no menace or threat from other patients. Just under half found staff to be supportive, and almost as many again said that staff were able to keep them safe.

There was a strong culture of patients helping each other, which was highly valued. Over half of those interviewed said that they would be sad to leave the ward as they appreciated the comfort, comparative security and reassurance of having staff available who were responsive. Many said they would also miss the support, empathy and camaraderie of fellow patients. Such loss of support on discharge may be linked to a raised suicide risk on discharge.

Patients wanted to have things explained to them, e.g. ward routine, medication, how long they can expect to be on the ward, so that they could be more in control and feel less vulnerable.

Patients who denied they had a need to be there saw nothing positive about any aspect of their stay. Further research is necessary to discover what interventions to promote a harmonious and positive stay, particularly for those who resent compulsory admission.

Conclusions and recommendations

The findings suggest that the use of intermittent observation may act to reduce rates of self-harm, and demonstrate the cost per patient is low and that the practice is highly acceptable to patients.

Trusts should review their special observation policies to ensure that this form of containment is an available option for staff.

Clinicians on wards where this is used at less than median levels, i.e. less than five patient-shifts per day, should re-evaluate their practice.

More research should be commissioned on the potential mechanisms that may link intermittent special observation with outcomes.

Comprehensive programmes of patient activity may act to reduce more serious self-harm, and are highly valued by patients.

Those services without a programme of patient activities should take urgent steps to provide one.

Those with less than the mean number of patient activity sessions per week, that is, eight, should increase the numbers of such sessions.

Staff, equipment, and space may all need to be provided to make sure any planned programme can be put into effect.

The link between a richer staff mix and lower rates of self-harm is a pointer to the importance of nurse staffing levels and grade mix on acute psychiatric wards. A systematic review of general acute care has shown lower patient mortality with a richer grade mix.

A similar review of existing evidence on psychiatric nurse staffing levels and outcomes should be conducted.

Standards for acute inpatient care must include nurse staffing levels and grade mix.

Wards and Trusts can take three measures that may lead to lower rates of self-harm: increase the use of intermittent special observation; ensure that wards run comprehensive programmes of patient activity sessions; and increase the numbers of qualified nursing staff.

It may be possible to conduct a randomised trial of an intervention incorporating these elements, and the feasibility of doing should be assessed.

The positive association between self-harm rates and the locking of ward doors is of some concern, as the use of 'closed' wards is increasing.

Further research should be undertaken into patient responses to, and evaluations of, the locking of the ward door, and to examine further the direction of cause and effect between self-harm and door locking.

There is considerable scope for the further analysis of the dataset collected using additional statistical techniques to explore relationships between observation, self-harm, and other variables.

In order to maximise the return on the NHS investment in this study, further analysis should be commissioned.

There is a known problem in the interaction between the psychiatric services and ethnic minority communities in the UK, and it is now clear that this extends to rates of self-harm.

The annual ethnicity census conducted by the Mental Health Act Commission should in future collect additional data on self-harm rates.

Further research in this area should be commissioned.

Patients and staff were both strongly disapproving of the use of any form of mechanical restraint, although that disapproval was slightly stronger amongst staff.

Mechanical restraint should not be introduced into UK psychiatric practice unless overwhelming evidence can be shown for its benefit.

The least acceptable methods to patients, excluding those not in use in the UK, were restraint, seclusion and coerced IM medication. For these methods, disapproval increased with experience and other patients were very distressed to witness them.

Use of these methods should be avoided as much as possible.

When they are used the other patients on the ward, as well as the patient subject to them, should be debriefed afterwards.

The greater approval of containment methods by male staff, and in the case of the harsher methods their greater use of them, raise questions about gender roles within the psychiatric professions.

Gender roles and containment usage should be a topic for consideration and reflection during the training of all psychiatric professions.

The majority of patients felt safe on the ward, because of the staff presence and actions, the support from other patients, and because they had devised strategies to keep clear of any trouble.

The psychiatric professionals providing acute inpatient care to patients in crisis should be applauded, and their contribution should receive wider recognition and respect.

Patients who denied they have a need to be on the ward saw nothing positive about any aspect of their stay.

Further research is necessary to discover what interventions promote a harmonious and positive stay for those who resent compulsory admission.

The results of the currently ongoing EUNOMIA study, when published, should be scrutinised for the wider lessons they might have for acute care.

Inter-patient petty theft on the ward caused considerable anxiety and irritation.

Lockable secure storage space for each patient should be provided in all wards.

All patients should be regularly informed that the stealing of others' property is not acceptable, and that when it occurs it should be reported to staff. This message should be incorporated in patient information packs and be placed on ward notice boards.

Staff should welcome and take seriously any reports of theft, however apparently trivial in their eyes, and should investigate and attempt to identify the perpetrator and return the items.

If a patient is admitted who is known to be prone to thieving, that patient should be more closely observed, and their property, locker and person searched at regular intervals.

Trusts may wish to consider developing a formal policy related to patients' property and theft.

Being bullied or intimidated, or witnessing this happening to other patients, caused significant upset.

Staff should be aware of what is happening, be open to reports from victims or witnesses, and be able to deal effectively with perpetrators when such abuses are uncovered.

All patients should be regularly informed that bullying and intimidation is not acceptable, and that when it occurs it should be reported to staff. This message should be incorporated in patient information packs and be placed on ward notice boards.

Trusts should develop anti-bullying policies and deploy educational interventions on this topic to patients while they are in hospital.

The use of drugs and/or alcohol interferes with effective treatment and distresses fellow patients, generating a sense of insecurity and a feeling that staff are not in control.

Any anti-bullying policies and actions, as detailed above, should incorporate a strand specifically relating to the funding, importation or holding of drugs and/or alcohol.

Recent guidance issued by the Department of Health should be scrutinised and followed (DH 2006).

There is a considerable degree of inter-patient support that is highly valued. Facilitating and consolidating this support is likely to be beneficial and reduce risks. The sudden removal of the warm, supportive community of patients on discharge may contribute to suicide risk.

A range of different interventions are possible to blur the boundary between in- and outpatient care around the time of discharge, and further evaluative research in this area should be commissioned.

Ways to enhance and consolidate inter-patient support should be devised, implemented, and evaluated.

The Report

1 Introduction and methods

Over the last 20 years, the focus of attention for policy makers and researchers has been on the implementation and development of different models of community care and the appropriate service configuration, standards, management and training to make that successful. Most recently, interest has been on developing alternatives to inpatient care, such as home treatment and crisis intervention teams. With the collective gaze directed towards community services, inpatient facilities have faced a demoralising combination of retrenchment and drift with little research, discussion or development.

There has also been a determined effort to reduce bed numbers to an historical low. The total number of psychiatric beds in England fell from 154,000 in 1954 to around 67,000 in the late 1980s, to just 32,400 in 2003–04, of which just over 13,200 were acute care beds (Warner, 2005), spread across roughly 550 acute psychiatric wards (Ryan, 2002; SCMH, 2005). Consequently, since the early 1990s, bed over-occupancy has been a constant pressure (Greengross *et al,* 1999). A recent national survey of adult psychiatric wards in England reported average bed occupancy rates of 100% (SCMH, 2005), at the very time when home treatment teams and crisis resolution services were expected to reduce the demand for inpatient beds. The continuation of such a level of occupancy prevents the provision of an effective, quality service and leaves staff managing crises rather than providing care (Quirk and Lelliott, 2001).

National guidelines on acute psychiatric care were published in 2002, with the acknowledgement that 'too often acute inpatient services are not working to anyone's satisfaction' (Department of Health, 2002a: 3). A series of reports and studies highlighting difficulties in acute care were enough to depress even the most optimistic. Problems included deficits in leadership, clinical skills and risk management (SNMAC, 1999); lack of nurse-patient interaction and therapeutic activities (Ford, Duncan and Warner, 1998); a high level of chaos and crisis-driven care (SCMH, 1998); a non-therapeutic, fearful climate with overworked staff (MIND, 2004); noisy wards with overly restrictive rules, lack of privacy or information about treatment (Goodwin *et al,* 1999); and a medicalised view of care and indifference to civil rights (Walton, 2000). In a questionnaire survey, completed by over 400 members of the mental health charity Mind, more than half the respondents said that acute wards were un-therapeutic environments, with a similar number saying that conditions were bleak and had a negative effect on their mental health (Baker, 2000). These are all serious concerns and led the Mental Health Act Commission recently to wonder 'whether all inpatient mental health services provide their patients with acceptable levels of security, care, or a sense of being treated as someone who matters' (MHAC, 2005: 19).

The national guidelines on acute psychiatric provision provided the National Institute for Mental Health (England) (NIMHE) with the task of restoring the therapeutic status of acute inpatient wards and redefining their role within a comprehensive system of care (Appleby, 2004). The purpose of acute wards was defined broadly as to provide a 'high standard of humane treatment and care in a safe and therapeutic setting for service users in the most acute and vulnerable stage of their illness' (Department of Health, 2002a: 5). Inpatient services should be used when it is not possible to treat and support the person at home or in an alternative, less restrictive setting. However, the philosophy, purpose and nature of the service provided were to be determined locally. This reluctance to outline the purpose and function of acute inpatient services perhaps reflects the uncertainty and disagreement about the current focus and future direction of such services.

1.1 Purpose of acute wards

In a recent study, Bowers, Simpson, Alexander *et al* (2005a) interviewed 47 multidisciplinary staff, including psychiatrists, ward managers, occupational therapists and nurses, from 14 acute inpatient wards in one NHS Trust. The staff were asked about the purpose of acute wards, the philosophy of care, interdisciplinary relationships, team strengths and weaknesses, and the structure and activities on wards. Although limited in being a study confined to one Trust, the findings provide a useful guide to the purpose of acute wards. Most admissions to acute wards were reported to be emergencies or a response to crises, in which the person was assessed to be a risk to themselves or others. This perceived risk would most often be related to the severity of the person's mental illness, so the need to treat that mental disorder was a primary function of admission. However, the decision to admit would be filtered through a number of factors that included the degree of social support available to the person outside hospital in the wider community, and the availability of beds. Support included that provided by family and friends and various community mental health services. Providing respite for the patient, family, neighbours or local community was also sometimes a reason for admission. Various routes to admission were described, which often resulted in little control and some disagreement over admissions amongst inpatient staff. Five themes were found regarding the objectives or function of acute care (see Figure 1) and four over-arching processes identified by staff to ensure these objectives are achieved (see Figure 2).

Figure 1. Key objectives of acute psychiatric care

1. Keep people safe;
2. Assess the nature and extent of the person's problems;
3. Provide treatment for their illness;
4. Address the person's basic self-care deficits and needs, and
5. Provide physical healthcare and treatment.

Figure 2. Key processes employed to meet objectives

1. Containment, through the use of a range of measures, to keep people safe;
2. Presence and presence+, which involves staff spending time with patients and using interpersonal skills to engage and build relationships;
3. Treatment provision, involving medication, therapeutic relationships and an array of psychotherapeutic approaches and activities; and
4. A complex range of tasks around management, organisation and co-ordination.

1.2 Safe and sound

As outlined above, admission to a psychiatric ward is often required to ensure the safety of the person being admitted and that of others. Consequently, patient and staff safety is a critical issue for modern acute psychiatric services. The Ward Watch survey by mental health charity Mind reported that 27% of respondents rarely felt safe in hospital and half of recent or current inpatients reported being verbally or physically threatened during their stay (Mind, 2004). The Royal College of Psychiatrists' National Audit of Violence, commissioned by the Healthcare Commission, found that a third of inpatients had experienced violent or threatening behaviour while in care. This figure rose to 41% for clinical staff and nearly 80% of nursing staff working in inpatient units (Healthcare Commission, 2005a).

The National Patient Safety Agency analysed nearly 45,000 mental health incidents reported to the National Reporting and Learning System from almost 80% of mental health/combined trusts in England and Wales (NPSA, 2006). A staggering 83% of mental health patient safety incidents occurred in inpatient areas that received just 162,250 admissions out of more than a million people receiving mental health care across the NHS in 2003–4. After accidents, the three most commonly reported incidents were disruptive/aggressive incidents (10,467: 23%); self-harm (7726: 17%); and absconding (3827: 9%); totalling nearly half of all reports. Almost all incidents of aggression (9591: 92%) occurred in inpatient settings and over half of all claims of clinical negligence refer to incidents of self-harm or violent/disruptive behaviour. As a result, the National Patient Safety Agency has identified acute psychiatric care as a priority area for attention.

The Commission for Health Improvement (CHI) has expressed concern at the way mental health trusts deal with safety issues and found problems with the quality of hospital environments, staffing levels and skills and systems for preventing and managing risk (CHI 2004). Action is being taken to improve the management of aggression in the NHS as a whole by the Security Management Services via standardised training in conflict resolution and a special programme in the prevention and management of violence in mental health settings (Nyberg-Coles, 2005). This builds on clinical practice guidelines for the management of disturbed behaviour in inpatient mental health settings, published by the National Institute for Health and Clinical Excellence (NICE, 2005a). Inpatient care of Black and Minority Ethnic patients (BME), especially in relation to disproportionate use of containment, is also an issue of growing concern, as highlighted by the Count Me In census (CHAI, 2005). The census found that Black, African and Caribbean people are three times more likely to be hospitalised with mental health problems than the rest of the population and that, once in hospital, black men are 50% more likely to be secluded and 29% more likely to be subject to physical control or restraint than white men.

Patients in mental health units and those recently discharged are also at high risk of suicide (Meehan *et al*, 2006). The National Suicide Prevention Strategy for England includes actions targeting the reduction of suicide among people who are known to mental health services (Department of Health, 2002b) and, since the late 1990s, there has been a reduction in completed suicide by inpatients, largely through the removal of ligature points. The latest available data shows a decline in inpatient suicides from 220 in 1997 (52 by hanging) to 170 in 2002 (38 by hanging), but a slight increase again in 2003, with 179 completed suicides, 44 of which were by hanging (NCISH, 2005).

Absconding by patients from acute psychiatric wards is another significant problem with an estimated 35 to 39 absconds per 100 patients (Bowers *et al,* 2000; Neilson *et al,* 1996). The National Confidential Inquiry into Suicides and Homicides (Appleby *et al,* 1999) found that 23% of psychiatric inpatients who died by suicide had absconded from the ward at the time. While the majority of absconds pass with no harm being caused and patients return by themselves, they still cause the staff a considerable amount of anxiety and cause both psychiatric staff and the police a great deal of work. The confidence of relatives and carers can also collapse when a patient leaves the ward without the knowledge and agreement of the clinical team. The NPSA (2006) highlighted the challenges faced by staff in its recommendations aimed at reducing absconding, balancing the risk of service users leaving the ward without staff knowledge against the need for fire safety and patients' rights for access and exiting.

1.3 Special observation

The management of acutely disturbed inpatients during periods of psychiatric crisis is difficult. Some patients may be suicidal or want to harm themselves, while others may be over-stimulated, pose a danger to staff or other patients, be acutely confused, sexually disinhibited or prone to abscond. In this report, self-harm, violence, rule breaking, absconding, etc., are collectively referred to as conflict behaviours. One common way to keep patients safe is to allocate an identified person to the care of the 'at-risk' patient for a certain period of time, called special observation (SO). SO is one of several containment methods used by staff to prevent harm to patients or others. SO is not solely directed towards the prevention of self-harm but is used to prevent absconding and therefore also harm to others or self-neglect; and following violent incidents on wards. Additional strategies directed at the protection of patients and others including searching patients for sharps on admission, locking the ward door, time out, medication, restraint, etc. It is therefore important to study SO in the context of other practices that may substitute for it, and to obtain relative evaluations of the acceptability and efficacy of these procedures, called collectively in this application: containment measures. A programme of research into conflict behaviours and containment measures in acute psychiatry has been ongoing at City University for the past five years. This work has led to a developing theory that conflict behaviours tend to run together on wards, and that higher levels of conflict behaviours occur on wards with certain characteristics, among which are: negative attitudes towards difficult patients, poor leadership, poor multidisciplinary team cohesion, and an ineffective structure of rules and routines.

1.4 Previous research on special observation

Reported rates of the use of SO, expressed as a proportion of admissions to acute psychiatric care, range from: 8% (Neilson *et al,* 1996), to 47% (Bowers, Simpson *et al,* 2003). Once initiated, the duration of SO can vary considerably, with reported durations ranging from two hours to 89 days (Shugar and Rehaluk, 1990). Policies for SO are highly variable (Bowers, Gournay and Duffy, 2000), as are professional groups that have authority to initiate or terminate the procedure (Hodgson *et al,* 1993), and the way in which it is carried out (Duffy, 1995).

Costs have only been crudely described in the US context, and range from $120,000 (Heyman and Lombardo, 1995) to $581,000 (Moore *et al,* 1995) per year, per hospital. The latter study suggests that SO accounts for up to 20% of the total nursing budget. Up to this point there have been no UK cost or resource use data that are directly applicable to this issue.

With regard to the efficacy of SO, Goh *et al* (1989) report that six out of 57 (10%) completed inpatient suicides were on 'special or close observation', a figure half the 21% reported by the confidential inquiry into homicides and suicides (DoH, 1999b). A literature review has not located any RCT pertaining to the use of SO (Bowers and Park, 2001), however the courts are in no doubt that failure to follow SO policies can result in serious harm to patients and is negligent (Gournay and Bowers, 2000).

The use of SO is itself a matter of controversy amongst UK psychiatric nurses. Some characterise this debate as a polarisation between observation and engagement (Cutcliffe and Barker, 2002). Use of SO has been portrayed as impersonal guard duty, infantilising, disliked by patients, directed primarily at protection of the organisation from scandal. Instead it is argued that psychiatric nurses should concentrate on developing personal relationships with patients and engaging with them in the resolution of their personal and psychological difficulties. Others have argued that observation and engagement are not incompatible, and that the proper practice of SO includes the processes of engagement and interaction with the patient (Bowers, Gournay and Duffy, 2000). There is little robust empirical evidence that helps to resolve this debate. Bowles and Dodds (2001) report a single ward case study where the use of SO was reduced to zero and this was characterised as an example of 'engagement'. Official statistics indicated a dramatic drop in many kinds of conflict behaviour. However, the intervention involved many new practices, as well as the abolition of SO. The 'Tidal Model' has also been characterised as 'engagement', and has become popular in the UK (DoH, 2002a). This model has been subject to two published evaluations, each based on a single ward, before and after, natural experiment. The first had equivocal outcomes (Stevenson *et al,* 2002), and the second was more positive (Gordon *et al*, 2005). The nursing concern about SO reflects a wider process of review of its function in the context of higher inpatient acuity and rising rates of compulsory detention. This has been reflected in the issuing of new guidelines (SNMAC, 1999; DoH, 2002a) and a review of SO in the context of suicide (DoH, 1999a).

There are a number of small-scale studies systematically examining the patients' perception of SO (e.g. Jones *et al*, 2000). These have found a mixed bag of positive (feeling understood, secure, reduced dysphoria and suicidal thoughts) and negative (feeling isolated, degraded, or coerced) reactions. Similar studies have solicited patients' views on other containment methods, but none have elicited any comparative evaluation.

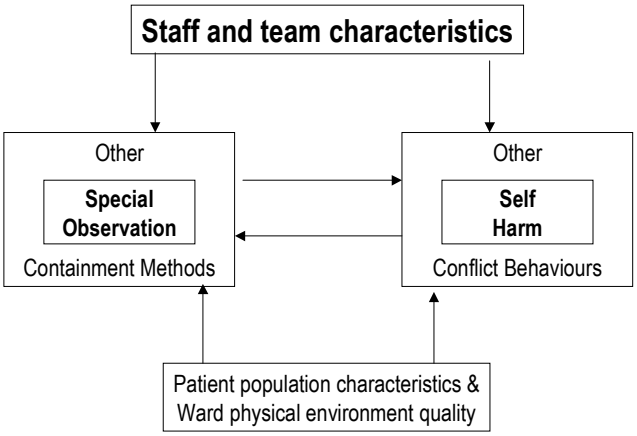
Different containment methods for disturbed patient behaviour are in use in different countries, and what is approved as a useful and dignified method of containment in one country is sometimes regarded as abhorrent in another, e.g. mechanical restraint (Bowers, Nijman and Alexander, 2003). SO is applied variably in different countries. Anecdotally, its use is unknown in Greece. In Denmark however, SO is now being experimentally introduced, coupled with the unlocking of acute ward doors. In Norway one word, translated as 'shielding' is used to describe practices from intermittent observation at one end of the continuum, to 'open area seclusion', where a patient is restricted to a small locked area of the ward accompanied by staff, at the other. These variations demonstrate that SO is part of a lexicon of ward-based coercive practices aimed at containing many types of disturbed behaviour safely.

Although much of the literature on SO discussing its value assumes that its only use is for the purpose of suicide prevention, close inspection of the literature reveals that this is not the case. A significant proportion (55%) of violent incidents on wards are followed by SO (Bowers, Nijman and Palmstierna *et al*, 2002), and it has reportedly been used as a substitute for seclusion in the management of violent patients in psychiatric intensive care (Lehane and Rees, 1996). SO is also used as a method of absconding prevention and any untoward outcomes that might ensue from it (Jones *et al,* 2000). A national survey demonstrated the widespread use of SO for such purposes as the management of self-mutilation, acute confusional states, acute medical conditions, property damage, agitation, impulsiveness, drug/alcohol withdrawal, etc. (Bowers, Gournay and Duffy, 2000).

Patients who are challenging to manage in one respect also tend to be challenging in others. The confidential inquiry has found that inpatients who commit suicide are also likely to have been noncompliant with medication and to have been violent (DoH, 1999a). Work on absconding has demonstrated a link with medication refusal, and violent incidents (Bowers Jarrett *et al,* 2000), subsequent work having revealed patterned links between different conflict behaviours of patients (Bowers, Simpson and Alexander, 2003). This implies that conflict behaviours need to be studied together, rather than separately.

Different methods of maintaining the safety of patients and others overlap and are interdependent. SO, for example, is only one method of preventing self-harm. Others include the banning of sharp items from patients possession, and restrictions on access to certain areas of the ward, e.g. kitchens and bathrooms. The use of SO as a strategy to prevent absconding changes, dependent on whether the ward door is locked, and 25% of acute wards in London are now permanently locked (Bowers, Alexander and Callaghan *et al,* 2002). Availability of PICU care, or the use of continuous physical restraint, or compulsory IM sedating medication, also alters the context for the use of SO, for example in the management of repetitive aggressive behaviour (Bowers and Crowhurst *et al,* 2003). Focusing only on SO and excluding other methods that may substitute for it, would give a misleading picture.

Extreme variation between wards in rates of both conflict and containment have been reported, e.g. a hundredfold variation in violent incident rates (Nijman, 1999), a tenfold variation in absconding rates (Bowers and Jarrett *et al,* 2000) and similar massive variations in the use of SO by ward and by consultant (Porter *et al,* 1998). The causes of this variation are unknown and are deserving of further study.



A programme of research into conflict behaviours and containment measures in acute psychiatry has been ongoing at City University. This work has led to a developing theory that conflict behaviours tend to run together on wards, and that higher levels of conflict behaviours, and use of containment methods, occur on wards with certain characteristics, among which are: negative attitudes towards difficult patients, poor leadership, poor multidisciplinary team cohesion, and an ineffective structure of rules and routines (Bowers, 2002). Work by other members of the project team is broadly supportive of these conclusions (e. g. Whittington, 2000, Nolan *et al,* 2001). This theory predicts that staff characteristics are critical in the production of acute wards where both self-harm and the use of SO will be low. However, it is possible that the variation between wards is explicable by patient characteristics (e.g. age, gender, ethnicity, diagnosis, or social dysfunction/deprivation of community of origin), or physical environment quality (e.g. crowding, maintenance, décor).

This City-128 multivariate study was designed to test these relationships and forms part of a programme of ongoing multi-method research work that includes longitudinal studies of acute wards, qualitative analysis of patient and staff views, action research directed by the developing theory, prospective international studies of coercion in psychiatry and controlled trials of interventions to reduce rates of conflict.

The methodological approach adopted is the best way of exploring the link between SO and outcome within a complex healthcare system, where an RCT would be difficult or unethical. The adjunctive cost analysis and surveys of patients' feelings of security and attitudes to containment measures provide additional valuable perspectives, enhancing the validity of findings from the overall study.

1.5 Aims and objectives

1. To test the following hypotheses, controlling for the potential confounding variables of patient characteristics and physical environment quality:

   Rates of use of special observation by ward will be positively related to rates of self-harm.

   Positive staff attitudes to difficult patients, greater ward structure (rules and routine), good ward leadership, team cohesion, and reduced burnout will each be associated with lower rates of self-harm.

2. To develop a theoretical typology of ward functioning in relation to patient-staff conflict, via cluster and factor analysis of patient conflict behaviours and staff security/containment measures, by wards.

3. To provide national norms (range, mean median, mode, skewness, kurtosis, standard deviation, quartiles) of conflict behaviours (and containment method use) by wards, in order to:

   Provide a basis for power calculations for future controlled trials.

   Provide standards against which Acute Care Groups can assess the functioning of their local wards.

4. To explore the direct costs of special observation and its impact on the cost of providing acute psychiatric care, in order to assess the relationship of resource use and cost components with the process and outcome variables identified within the study, and to create baseline information for future controlled trials.

5. To systematically describe patient and staff views of staff containment measures, including Special Observation, incorporating judgements of efficacy, acceptability, dignity, safety for patients, and safety for staff.

6. To explore patients' views on subjective feelings of safety and security on acute psychiatric wards, with a view to the later development of a quantitative measure.

1.6 Methods

1.6.1 Design

Module one: A cross sectional survey of a six month period on each participating ward, followed by multivariate analysis using multi-level modelling to distinguish service-level effects and ward-level effects.

Module two: A cross-sectional survey of the direct costs of special observation, of the structure of resource use and costs within acute psychiatric wards and a modelling exercise to relate resource use and costs to ward structures.

Module three: A survey of staff and patient views on containment measures.

Module four: Interviews of patients about their subjective feelings of safety and security.

1.6.2 Sample

Module one: The sample size calculations were based on the following assumptions: using Cohen (1992) for multiple regression studies to achieve 80% power and 5% significance level with 20 independent variables, 76 patients are required in eight wards to demonstrate a large effects size. However this study was to be based on patients clustered in different wards and different regions. Assuming that between-ward variation would be high compared to within-ward variation, an intra-cluster correlation (ICC) for wards of 0.7, based on the worst ICC in Campbell *et al* (2000) was used giving a design effect of 7.3. This then required 550 patients from 55 wards. Since the study also has clustering at the region level, the number required is further inflated by an ICC of 0.07, based on the assumption that within-region variation would be much lower than between-region variation. This means that the design effect for wards is 2.33, thus requiring 128 wards. Thus the target sample size was 128 acute NHS psychiatric wards, their patients and staff, geographically situated proximate to three centres: London, Central England, Northern England. Acute psychiatric wards were defined as those that primarily serve acutely mentally disordered adults, taking admissions in the main directly from the community, and not offering long-term care or accommodation. Wards that were organised on a speciality basis, or that planned to change population served, location, function, or which were scheduled for refurbishment during the course of the study were excluded. Each centre identified all eligible wards within reasonable travelling distance of their research base, including inner city, urban and rural areas as available and accessible. It was initially intended to randomly sample wards, with replacement for refusals to participate, to accumulate a sample of just over 40 wards within reach of each centre. However, the geographical dispersion of wards meant that to achieve the requisite sample size, the Northern and Central England centres had to recruit all available wards within practical reach for data collection. In London, it was possible to randomly sample from a list of 112 wards. Data were collected over a period of six months on each ward. Commencement of data collection by selected wards was staggered over an 18 month period, for logistical reasons. In essence this meant that at each research centre groups of wards started the study in four or five cohorts.

Module two: A survey of a random selection of five wards within each centre was undertaken, and a structured interview with a senior staff member used to determine the structure of resource use within them.

Module three: A random sample of ten patients and ten staff per ward was drawn, with replacement for refusals or those too ill to participate, and asked to complete the Attitude to Containment Measures Questionnaire (ACMQ). Response rates amongst staff were such that all staff were asked to complete ACMQs in order to achieve ten per ward. With respect to patients, all who were well enough to complete questionnaires, in the view of nurses on duty, at the time researchers visited the wards were asked to do so, until a sample of ten per ward was achieved.

Module four: A random sample of 20 patients per study centre, one patient from a randomly selected 20 wards in the module one sample, was drawn, and interviewed about their subjective feelings of safety and related issues.

1.6.3 Data collection and instrumentation

Four means of data collection were utilised: information on the ward physical environment and the policies in operation was collected on a site visit by a researcher and a form completed by the ward manager; data on the main outcome measures were collected by end of shift reports by the nurses in charge; the ward multidisciplinary team were required to complete a selection of standardised questionnaires, parcelled into several batches to reduce demand on busy practitioners; and smaller samples of patients and staff were asked to complete questionnaires or participate in interviews.

The shift report version of the Patient-staff conflict checklist (PCC-SR, Bowers, Simpson and Alexander, 2003) was used to log the frequency of patient conflict behaviours, e.g. self-harm, absconding, violence, medication refusal, either attempted or successful, and the staff containment measures used to maintain safety, e.g. intermittent special observation, constant special observation, seclusion, physical restraint etc., and was compiled using strict definitions at the end of every nursing shift. On entry to the study, ward nursing staff received training in the use of the PCC-SR, and each ward was provided with a handbook giving definitions of items. The items for aggression were drawn from the Overt Aggression Scale (Yudofsky *et al,* 1986; Silver and Yudofsky, 1987; 1991; Bowers, 1999), a widely used and validated instrument, with a reported inter-rater reliability of 0.7 – 0.87. For all incidents of self-harm or attempted suicide, a Bongar Lethality Scale (Bongar, 1991) was completed as part of the PCC-SR, to assess the severity of the incident. The PCC-SR was supplemented with additional items to include age, gender, diagnosis, ethnicity, and postcode of patient's place of residence, for those patients admitted during the shift. In recent tests, based on use with case note material, the PCC has demonstrated an inter-rater reliability of 0.69 (Bowers and Douzenis *et al,* 2005a), and has shown a significant association with rates of officially reported incidents (Bowers and Flood *et al*, 2006). A copy of the PCC-SR version used in this study, with definitions, can be found in Appendix 1.

Basic ward data was collected on two forms, one completed by the researcher visiting the ward in conjunction with the ward manager, the second completed by the ward manager alone. The replies enabled the calculation of composite scores for physical environment quality, ward observability, actual staff establishments for all relevant disciplines, levels of security (banned items, restrictions on patients, searching, drug and alcohol monitoring, presence of security guards, cctv, door security, etc), as well as many other variables. The contents of these data collection forms are summarised in Appendix 2.

Staff attitude to difficult patients was assessed using the Attitude to Personality Disorder Questionnaire (APDQ; Bowers and Allan, 2006) assessing staff degree of enjoyment, security, acceptance, enthusiasm and sense of purpose in working with PD patients. Scores from this scale have been shown to be related to underlying beliefs and moral judgments about the negative behaviours of patients. Positive scores have been shown to be correlated with low staff stress, high performance, as judged by seniors, high interaction rates with patients, and more positive perceptions of management (Bowers and Carr-Walker *et al,* 2006).

Ward structure was assessed using the Order and Organisation, Programme Clarity and Staff Control subscales of the Ward Atmosphere Scale (WAS; Moos, 1974). This scale has been widely used as an outcome measure in many studies (Moos, 1997).

The quality of ward leadership was assessed by taking the score for the Ward Manager, as rated by ward staff, using the Multifactor Leadership Questionnaire (MLQ; Bass and Avolio, 1995), a well validated and reliable scale widely used to assess transformational and transactional leadership.

Multidisciplinary team cohesion was assessed using the Team Climate Inventory (TCI; Anderson and West, 1999). This scale has been used in multiple health service studies, including psychiatric settings, Community Mental Health Teams and wards, and is derived from a large and well-known programme of work in this area.

Burnout was assessed using the Maslach Burnout Inventory (MBI; Maslach and Jackson, 1981), a scale widely used and validated in studies of workplace stress and morale, within and outside healthcare settings.

Some staff and patients were asked to complete the Attitude to Containment Measures Questionnaire (ACMQ; Bowers, Simpson, Alexander and Ryan *et al,* 2004). This scale provides relative measures of views on acceptability, efficacy, dignity, safety of patients and safety for staff of different forms of containment for disturbed behaviour. Although new, this scale has been used with student nurses in the UK, and psychiatric professionals in the Netherlands, Finland and Australia (Bowers and van der Werf *et al,* 2006).

An interview exploring the staff time costs of conflict and containment events was prepared under the supervision of the project's Health Economist. This was then piloted with staff from two wards not in the study and refined, based on the experience gained, before being used in the City 128 study. The Conflict and Containment Economic Interview is summarised in Appendix 3.

A semi-structured patient interview schedule was devised, by the service user consultant with advice from user groups, on the topic of patients' fears, anxieties and concerns, and piloted by the research team, prior to being finalised and used. A semi-structured format was adopted to ensure that relevant information was elicited, while allowing freedom to explore responses. A copy of the schedule can be found in Appendix 4.

1.6.4 Procedure

Initial management approval in principle for wards to participate in the study was sought in advance from Trust Chief Executives. Ethical approval for the study was obtained from the North West Multi-centre Research Ethics Committee (Ref. MREC 03/8/085). Following sample identification and research governance approval, letters were sent inviting each selected ward manager and their teams to participate in the City 128 study, detailing the purposes and advantages of participation, and the nature of the commitment required.

Expression of interest resulted in a site visit to the ward and its team by a researcher, who made a presentation about the study and collected ward assessment data. At this point staff were instructed on how to collect Patient-staff Conflict Checklist shift reports (PCC-SR). A project liaison person was appointed from the ward personnel, and contacts were also made with Directors of Nursing and senior managers to ensure that everything went smoothly. Data collection commenced immediately and continued for six months on each participating ward. Wards were recruited to the study in several separate cohorts at each research centre.

One of the major obstacles to a study of this nature is the difficulty in gaining staff cooperation in the collection of high quality data. Distant requests for the submission of data are unlikely to be complied with, as staff on acute wards have many other pressing priorities and require an incentive to participate in research. A number of different methods were used to motivate staff to participate.

The study had a clear visual identity with its own logo, and this logo was used on all project related materials, questionnaires, booklets, letters, etc.

The research assistant at each centre stayed in regular contact with the ward and their liaison personnel, giving encouragement and feedback.

In cases of low response rates, letters were written to ward managers and to ward staff, explaining the importance of the study and a good response rate.

Ways were negotiated with each ward as to how to incorporate PCC-SR completion into usual routines.

Attractive colour laminated posters were placed on the ward advertising the study and what was required, naming all three liaison officers, and providing contact telephone numbers.

Mugs and pens displaying the City 128 logo were given to staff.

Wards were also supplied with superior quality beverages and biscuits for the staff as an incentive to collect detailed and accurate data.

A three-monthly newsletter detailing the study progress was distributed to all participating wards, ensuring the study maintained a high profile in the eyes of staff.

A project web site was created and maintained (www.citypsych.com).

It was advertised that, at the close of the project, a free conference would be held with places for representatives from each ward, where preliminary findings from the study would be presented.

Prizes were advertised, and given, to wards that collected the largest amount of data at each research centre.

Batches of questionnaires for staff were issued to the wards at roughly monthly intervals, with instructions for their completion. Completed questionnaires were posted in a sealed box on each ward, and collected at regular intervals by the research assistant.

1.6.5 Data entry and cleaning

Basic ward data forms were completed by hand, then entered onto SPSS at the office base. The data was then explored for errors or missing data by inspecting the response frequencies for each variable. Apparent errors were then checked with the staff of the ward concerned, and corrected if applicable.

Patient interviews were tape recorded and transcribed, before being subject to analysis. Early interview transcripts were read by several researchers, to check for accuracy and completeness. Conflict and containment economic interviews were initially recorded by hand, and subsequently typed up by the research assistant from each centre, before being further analysed.

All other questionnaires and checklists were entered onto computer using Snap survey optical mark recognition software. Results were then checked, with an individual inspection of each item to which there was either 'no reply', or a double response i.e. two different marks for the same item. In addition, for PCC-SRs, all dates and postcodes were entered by hand from scanned images, and all responses indicating a greater frequency than five of the same conflict or containment event were manually inspected, and corrected if necessary. All self-harm ratings were also checked to ensure absolute accuracy.

Postcode data on admission was extracted and forwarded to the team geographer, who arranged for it to be matched with various deprivation, crime, and social fragmentation indices for the small areas corresponding to postcode area locations.

1.6.6 Response rates

In London, one Trust declined to participate and of wards randomly sampled in participating Trusts, two declined and one was excluded due to a scheduled refurbishment. In the North West, 16 wards refused to participate, most on the grounds of commitment to other projects, and with three hospitals, accounting for eight of the 16 ward refusals, declining to participate at higher management levels than the ward managers. In this centre, an additional four wards were excluded due to scheduled refurbishments, and three wards excluded due to extremely poor response rates. In Central England, no Trust or ward refused to participate, and no wards had plans for refurbishment necessitating their exclusion. Because of over-sampling for anticipated dropouts, which did not occur, a total of 136 wards completed data collection for this study. With respect to patient interviews, the level of refusals was moderate given that no payment was offered, with a total of 45 patients who were approached declining to be interviewed.

A very large number of valid questionnaires were collected, and these are detailed below in Table 1. Response rates for questionnaires were quite highly correlated, with a Cronbach's alpha of 0.88. However, response rates on the questionnaires were not highly associated with PCC-SR completion rate as, if this is added to the calculation, Cronbach's alpha falls to 0.13.

Table 1. Numbers of questionnaires collected and scanned, with means and standard deviations by ward.

	n	Minimum	Maximum	mean per ward	std. dev.	mean % of total possible
ACMQ (patient)	1361	6	24	10.01	1.37	na
ACMQ (staff)	1226	2	33	9.01	4.28	45%
APDQ	1413	1	25	10.39	4.29	52%
MBI	1525	2	25	11.21	4.67	56%
MLQ	981	1	24	7.27	3.85	36%
PCC-SR	45989	48	569	338.15	114.32	67%
TCI	1312	1	54	9.65	6.92	48%
WAS	1430	3	25	10.59	4.17	53%

In addition, information was collected on 16,240 admissions, of which 4,112 had valid postcodes that could be matched to local area geographical data. Within the admission returns there was sometimes substantial missing data. The most commonly missing items were: whether the patient was formally detained under the Mental Health Act; whether they were admitted for risk of harm to self; or for risk of harm to others. Exclusion of all admissions with three or more missing data items, excluding postcodes, results in the retention of 11,128 admissions. The results of this more conservative approach to missing admission data are presented in a sensitivity analysis in the following chapter.

1.6.7 Data validity and reliability

The integrity of the combined dataset was tested by assessing for the presence of predictable associations within and between items from different sources. Thus it was possible to demonstrate statistically significant relationships between: number of beds and numbers of psychiatrists; WTE nursing staff in post and staff numbers on duty; proportion of WTE staff qualified and proportion of qualified staff on duty; door security and door locking; male ward and admission of male patients; female ward and the admission of female patients; presence of a seclusion room and seclusion use. In addition: bed numbers in divided and undivided rooms do not exceed total number of beds; and checks of single room numbers against windows in doors of single rooms found no contradictions.

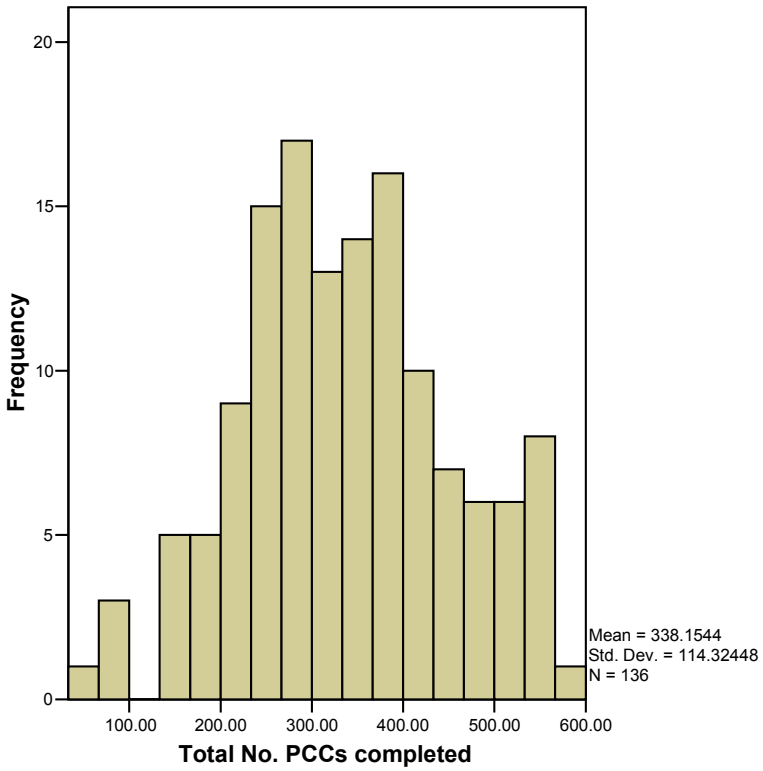
The possibility of PCC-SR response bias was assessed by examining the relationship between total conflict and containment frequency by ward, and numbers of PCC-SR forms submitted. An inverse correlation was found between response rate and mean total conflict events per day ($r = -0.27$, $p = 0.002$), and a trend towards a similar relationship with mean containment events per day ($r = -0.15$, $p = 0.08$). These associations could arise in two ways:

1. The associations may be real, and reflect the fact that disorganised wards had high rates of conflict and had more difficulty in participating in research. This is supported by the finding that high PCC-SR response rates are highly associated with good teamwork (all TCI subscales, e.g. TCI participative safety, $r = 0.24$, $p = 0.004$) and good ward leadership (all MLQ subscales, e.g. MLQ transformational leadership, $r = 0.34$, $p < 0.001$). If the association between low response and high conflict is real in this way, then it does not constitute bias.

2. Low responding wards had a greater tendency to complete and submit a PCC-SR on shifts with higher levels of conflict. While this might be the case, it is hard to find a reason as to why it might happen. If such wards had a greater level of inertia to overcome before completing a PCC-SR, such completion representing extra work, it could be argued that inertia would be more likely to be overcome on quiet, less busy shifts rather than the reverse.

Each ward participated in the study for six months, meaning that the total possible number of PCC-SR forms that could be submitted was 3 (shifts per day) x 28 (days per month) x 6 months, i.e. 504, although some wards participated for longer than the minimum period. Actual response rates were normally distributed (Kolmogorov-Smirnov Z = 0.62, p = 0.84), as displayed in Figure 1.

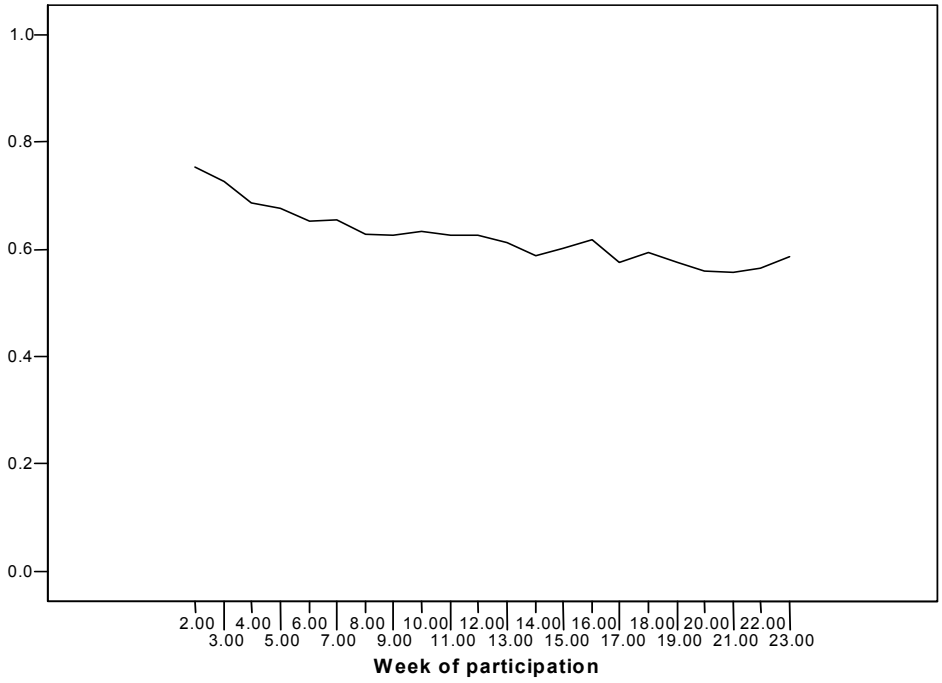
Figure 1. Histogram of PCC-SR response rates



Four wards had a particularly low response rate of less than 100 PCC-SRs. However, they were no different in total conflict rates (mean for low responders = 15.04, mean for high responders = 14.37, t = .184, df = 134, p = 0.855) or total containment rates (mean for low responders = 6.01, mean for high responders = 5.85, t = 0.618, df = 134, p = 0.538).

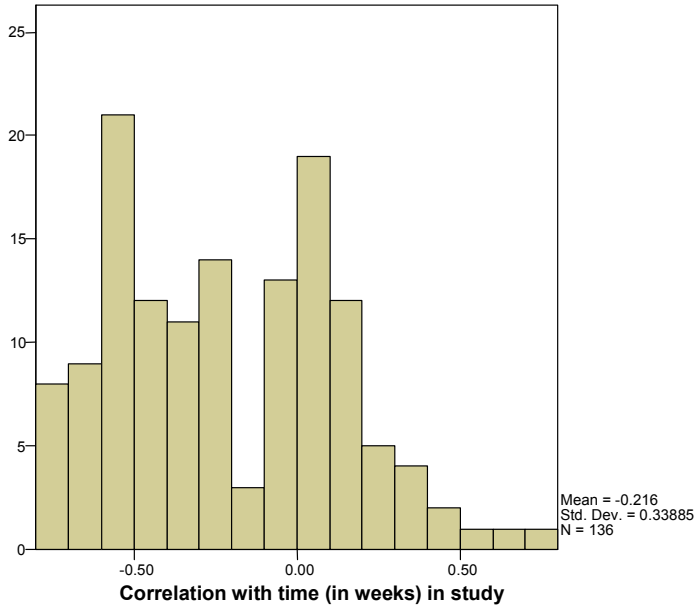
Another way to seek evidence on response rate bias is to examine rates of conflict and containment by ward over time. Nearly all wards declined in the number of PCC-SR forms they completed over the six months they participated in the study. Figure 2 displays the overall response curve over weeks of participation in the study, excluding the first and final weeks, and shows a small but steady decline. First and final weeks were excluded as many of these were partial weeks, and also represented the time the data collection was getting underway, or being wound up.

Figure 2. Response rates (in proportion of possible PCC-SR returns) by week of participation in the study



There was a lot of variability in response rates over time by ward. Some wards quickly climbed to a high response rate and sustained this throughout their participation in the study. Others had periods of lowered response followed by returns to good levels. Some increased their response rate over the study period. However the most common pattern was a degree of decline, although none showed any sudden and sustained decreases. In order to identify those wards that declined most in their response rates, correlations were run between response rates and time. Figure 3 displays a histogram of these correlations.

Figure 3. Histogram of wards by correlation of response rates with time in study



Setting a criterion of a correlation of –0.7 or greater identifies nine wards with the steepest declines in response rates. None of these wards fall into the lowest responding group of wards previously identified. They were no different in total conflict rates (mean for steepest decline wards = 15.88, mean for other wards = 14.28, t = .648, df = 134, p = 0.518) or total containment rates (mean for steepest decline wards = 7.35, mean for other wards = 9.93, t = 1.284, df = 134, p = 0.201).

However, as with any dataset, there is an error rate in PCC-SR results from sources other than bias. Error in the PCC-SR data can arise from a number of sources, for example, scanning errors, misremembering the shift, ticking the wrong frequency, ticking the wrong line, not strictly using the definitions for items, more or less responses on higher/lower conflict shifts. Use of seclusion appears to be 0.04/day on wards where there was no declared access to seclusion. The situation with numbers of patients sent to Psychiatric Intensive Care Units is the same, with a rate of 0.06/day on wards that have no declared access to PICU. Some of the seclusion error rate could have been about confusion of definitions with time out, as some nurses feel strongly that this constitutes *de facto* seclusion. Slightly similarly, some wards without a PICU registering patients sent there might actually have been referring to smaller Intensive Care Areas, which are an alternative to PICUs on some units. However, together these suggest an error rate, from whatever source, of 0.05 in daily rates measured by the PCC-SR. Being placed in seclusion, mean 0.05 per day per ward, or sent to PICU, mean 0.04 per day per ward, are the rarest of containment events, which is why any error rate is particularly visible in relations to these items.

In order to assess the validity of the PCC-SR for each ward in the study, one day at random was chosen and locally-held official incident reports examined and compared to PCC-SR responses. Only 66 of the 136 wards could provide this data, and the quality was variable. Locally held records were absent on the remaining wards. For those that did have information, sometimes this was locally held photocopies of incident reports in folders, sometimes undated and therefore unusable, sometimes did not include absconds as they were reported using a different system, etc. Of the 66 wards, only 12 had an officially reported incident on the selected day. The correlation between PCC-SR total conflict and officially reported adverse incidents approaches significance ($r = 0.15$, $p = 0.1$). This type of test of PCC-SR validation has been attempted elsewhere (Bowers and Flood *et al,* 2006) with a much larger sample, and demonstrated a significant correlation ($r = 0.24$, $p = 0.011$).

All participating Trusts had engaged on the NHS 2004–5 performance ratings, details of which were published on the Internet (Healthcare Commission, 2005a). This enabled two further checks of validity. Cleanliness ratings submitted by Trusts were statistically associated with ward hygiene ratings made by the project research assistants ($r = 0.17$, $p = 0.03$), and ward total Bongar scores for self-harm incidents collected via the PCC-SR associated with Trusts' three year average inpatient suicide frequencies ($r = 0.23$, $p = 0.006$).

Taken together, these assessments indicate that the data are sufficiently reliable for the analysis which has been undertaken. Insofar as can be tested, variables collected in different ways from different sources are consonant with each other. Tests against external data support the validity of the measures used. In order to further assess the possibility of response bias, sensitivity analyses were conducted to assess the influence of low responding wards and wards with steep declines in response rates, and are reported in the following chapter.

1.6.8 Data analysis

Analysis of data is described in detail in the subsequent chapters. The relationship of SO to self-harm was assessed using multilevel modelling and is described in Chapter 3. Potential typologies of wards were explored using both cluster and factor analysis, and this is described in Chapter 4. National norms for conflict and containment rates were calculated, and can be found in Appendix 5, with figures on levels of variance between regions and Trusts. Analysis of the costs of conflict and containment can be found in Chapter 6, and systematic comparison of staff and patient views on containment in Chapter 5. Patient interviews were subjected to content analysis, and the themes as they relate to patients feelings of safety and security are presented in Chapter 7.

2 The relationship between Special Observation and self-harm

2.1 Aim

The purpose of this analysis was to assess the relationship between special observation and self-harm rates, by ward, whilst controlling for potential confounding variables. It was initially predicted that special observation would be positively associated with self-harm rates, and the lower self-harm rates would be associated with better staff working relationships and attitudes.

2.2 Method

Data were collected from 136 acute wards on rates of self-harm, special observation, other conflict and containment methods, the patients admitted, the staff team and the environment of the ward. Multivariate correlational techniques were then used to assess relationships between the main items of interest, special observation and self-harm, whilst controlling for the effects of other variables.

2.3 The study wards

The 136 wards of the sample were situated in 67 hospitals within 26 NHS Trusts. The mean number of beds per ward was 21, with a range of 11 to 30, with an average of 51% of these beds in single rooms. Most wards (48%) were built in the 1980s and 1990s, with 17% in 2000 or later, 19% in the 1960s and 1970s, and only 16% prior to this. All were equipped with a separate smoking room, but only 82% had a quiet room, and even fewer (60%) had a secure outdoor space for patients. Less than half (43%) had been redecorated recently or within the past year, and a third (33%) had to wait more than five days on average for minor repairs to be carried out. Layouts were often complex, with 49% of wards having four or more independently observable zones (sight lines). The mean number of nursing staff in post per bed was 0.99 WTE (s.d. 0.22); the mean proportion of these staff who were qualified nurses was 0.61 (s.d. 0.12), and the mean vacancy rate was high, at 15%. Of the Ward Managers, 37% only worked from 9am to 5pm, with the rest doing shifts occasionally or on a regular basis. A minority of wards (18%) employed permanent night staff only, whereas the rest operated some form of internal shift rotation of staff. Male only and female only wards were in the minority, 13% and 14% respectively, with most (73%) being for both genders. A significant proportion of wards (41%) had no establishment Occupational Therapists allocated to them, and the vast majority (87%) had no dedicated Clinical Psychologist time at all. Where they were available, the actual numbers of these staff in post were even lower.

2.4 Data analysis

2.4.1 Preparation of the data for analysis

The large number of variables available meant that some consolidation was advisable prior to the analysis. Compound scores for the observability and physical environment quality, banned items, restriction on patients, etc., were therefore created. The separate scores produced by most of the questionnaires were also highly inter-correlated (r = 0.7 or greater), and where this was the case scores were combined prior to analysis by taking means at the ward level.

Conflict and containment event counts were standardised to wards of 20 beds (i.e. [count/bed numbers] x 20), so that variation due to the size of wards was removed. All continuous variables, conflict and containment rates, compound scores, questionnaire scores and other items, were converted to z scores prior to analysis to allow for appropriate comparisons of effect, as items were on very different scales.

2.4.2 Overview of the data and variables in the analysis

Patients: Information about patients admitted was collected by the PCC-SR end of shift report. Some data were available on 16,240 admissions, although sometimes there was missing data; diagnosis, age and postcode are not always known at the time of admission, and this is when these items were collected by staff. From this data were derived, by ward, the proportion of admissions: male, diagnosed with schizophrenia, aged under 35 years, sectioned under the Mental Health Act, admitted for harm to self, admitted for harm to others, ethnicity (White, Irish, Caribbean, African, South Asian, Other). Postcodes were collected on 5808 of these admissions, and 4112 of these were found to be valid and possible to match to area data, allowing the calculation by ward of a mean Index of Multiple Deprivation (IMD, Noble *et al,* 2004), and Social Fragmentation Score (SFS; Congdon, 1996; Whitley *et al,* 1999). Attitude to Containment Measures Questionnaires were also collected from a random sample of patients on the study wards, and a mean approval of containment calculated for entry in this analysis.

Table 2. Descriptive statistics and univariate associations for patient variables

Domain: PATIENTS

Variable	Source	Type	Mean	sd	Lowest	Highest	Univariate assoc. with self-harm* r	p	Standardised to ward size	Level entered	Entered as z score
Proportion of admissions male	PCC-SR	Numeric	0.49	0.26	0.00	1.00	-0.152	0.078	No	Ward	Yes
Proportion of admissions with schizophrenia	PCC-SR	Numeric	0.32	0.15	0.05	0.81	-0.034	0.696	No	Ward	Yes
Proportion of admissions under 35	PCC-SR	Numeric	0.47	0.13	0.11	0.87	0.375	<0.001	No	Ward	Yes
Proportion of admissions detained under MHA	PCC-SR	Numeric	0.30	0.15	0.03	0.74	0.302	<0.001	No	Ward	Yes
Proportion of patients admitted for risk of harm to self	PCC-SR	Numeric	0.61	0.12	0.19	1.00	0.015	0.867	No	Ward	Yes
Proportion of patients admitted for risk of harm to others	PCC-SR	Numeric	0.32	0.15	0.06	0.75	0.354	<0.001	No	Ward	Yes
Proportion of admissions white	PCC-SR	Numeric	0.67	0.25	0.18	1.00	-0.581	<0.001	No	Ward	Yes
Proportion of admissions Irish	PCC-SR	Numeric	0.03	0.05	0.00	0.22	0.291	0.001	No	Ward	Yes
Porportion of admissions Caribbean	PCC-SR	Numeric	0.11	0.12	0.00	0.46	0.640	<0.001	No	Ward	Yes
Proportion of admissions African	PCC-SR	Numeric	0.05	0.07	0.00	0.31	0.411	<0.001	No	Ward	Yes
Proportion of admissions Asian	PCC-SR	Numeric	0.07	0.07	0.00	0.31	0.167	0.052	No	Ward	Yes
Proportion of admissions other ethnicity	PCC-SR	Numeric	0.05	0.06	0.00	0.33	0.273	0.001	No	Ward	Yes
Index of Multiple Deprivation	PCC-SR	Numeric	33.68	12.08	11.30	69.73	-0.012	0.888	No	Ward	Yes
Social Fragmentation Index	PCC-SR	Numeric	0.55	0.64	-0.51	2.45	0.200	0.020	No	Ward	Yes
Patient approval of containment	ACMQ	Numeric	35.33	2.69	25.40	42.33	-0.304	<0.001	No	Ward	Yes

*Pearson correlation of standardised rate of self-harm with standardised variables where applicable

During modelling, a proportion of admissions of other ethnicity was excluded as a reference category, as it is fully defined by the other five ethnic categories.

Service environment: The admission data was also used to create an 'admissions during the shift' variable (shift level) and a 'rate of admissions per day' variable (ward level). Data provided by ward managers provided categorical variables as to whether the ward was served by a: crisis intervention team, home treatment team, assertive outreach team, and/or early intervention team. Ward managers also provided information on the number of beds, the number of patients on the ward with lengths of stay greater than a month, and whether a Psychiatric Intensive Care Unit and/or a seclusion room were available.

Table 3. Descriptive statistics and univariate associations for service environment variables

Domain: SERVICE ENVIRONMENT

Variable	Source	Type	Mean	sd	Lowest	Highest	Univariate assoc. with self-harm* r	p	Standardised to ward size	Level entered	Entered as z score
Admissions during shift	PCC-SR	Numeric	0.35	0.65	0.00	3.00	0.109	<0.001	No	Shift	Yes
Rate of admissions per day	Ward Manager	Numeric	0.99	0.54	0.18	3.70	0.536	<0.001	No	Ward	Yes
Ward served by crisis intervention team	Ward Manager	Categorical	65%				0.141	0.103	No	Ward	No
Ward served by home treatment team	Ward Manager	Categorical	52%				-0.134	0.119	No	Ward	No
Ward served by assertive outreach team	Ward Manager	Categorical	82%				-0.051	0.553	No	Ward	No
Ward served by early intervention team	Ward Manager	Categorical	46%				0.032	0.716	No	Ward	No
Number of beds (ward size)	Ward Manager	Numeric	21.05	3.79	11.00	30.00	-0.339	<0.001	No	Ward	Yes
Number of patients with LoS > 3 months	Ward Manager	Numeric	4.50	3.58	0.00	15.00	-0.144	0.095	No	Ward	Yes
Psychiatric Intensive Care Unit access	Ward Manager	Categorical	86%				0.035	0.686	No	Ward	No
Seclusion Room access	Ward Manager	Categorical	51%				-0.024	0.784	No	Ward	No

*Pearson correlation of standardised rate of self-harm with standardised variables where applicable

Rate of admissions per day was not standardised to ward size, as there was no relationship between these two variables ($r = 0.021$, $n = 136$, $p = 0.804$). Total number of beds on the ward was entered in the model even though appropriate other variables were standardised, as it was conceptualised that the numbers of other patients available to interact with might influence the demands on, or support available to, individual patients, and thereby impact on self-harm rates. Similar thinking underpinned the entry of admissions during the shift without standardisation to ward size, in that a new admission represents a single impact on all patients on the ward, regardless of their numbers.

Physical environment: Ward managers in conjunction with the project researchers collected a number of details about the physical environment of wards (see Appendix 2). Variables on the proportions of beds in single rooms, and whether those rooms had windows in the doors, were entered separately into the analysis. Compound measures were produced for ward observability: numbers of rooms, sight lines, exits, sight lines from the nursing office; and physical environment quality: availability of quiet room, smoking room, outdoor space, telephone for patients, how recently built, refurbished and redecorated, quality of décor, furnishings, view, hygiene; number of repairs awaited and average wait for repairs.

Table 4. Descriptive statistics and univariate associations for physical environment variables

Domain: PHYSICAL ENVIRONMENT

Variable	Source	Type	Mean or proportion	sd	Lowest	Highest	Univariate assoc. with self-harm* r	p	Standardised to ward size	Level entered	Entered as z score
Proportion of beds in single rooms	Researcher	Numeric	0.51	0.36	0.00	1.00	0.289	0.001	No	Ward	Yes
Windows in doors of single rooms (some or all)	Researcher	Categorical	91%				0.069	0.423	No	Ward	No
Index of Ward Observability	Researcher	Numeric	9.10	3.32	3.00	26.00	-0.112	0.193	No	Ward	Yes
Physical environment quality	Researcher	Numeric	35.64	3.80	25.00	44.00	-0.145	0.093	No	Ward	Yes

*Pearson correlation of standardised rate of self-harm with standardised variables where applicable

Patient routines: From the ward managers, information was obtained on whether community meetings were held regularly, and on the number of sessions of planned patient activity per week.

Table 5. Descriptive statistics and univariate associations for patient routine variables

Domain: PATIENT ROUTINES

Variable	Source	Type	Mean or proportion	sd	Lowest	Highest	Univariate assoc. with self-harm* r	p	Standardised to ward size	Level entered	Entered as z score
Community meetings held regularly	Ward Manager	Categorical	87%				0.044	0.613	No	Ward	No
No. sesssions of planned patient activity/week	Ward Manager	Numeric	7.75	6.7	0	30	0.037	0.678	No	Ward	Yes

*Pearson correlation of standardised rate of self-harm with standardised variables where applicable

Conflict: Frequencies of these items from the PCC-SR were entered into the analysis: verbal aggression, aggression to objects, aggression to others, smoking in a non-smoking area, refusing to eat, refusing to drink, refusing to wash, refusing to get up, refusing to go to bed, refusing to see workers, alcohol use (suspected or confirmed), drug use (suspected or confirmed), attempts to abscond, absconding (missing), absconding (official report), refused regular medication, refused PRN medication, and demanding PRN medication. Definitions for these items can be found in Appendix 1, and mean ward level frequencies per day in Appendix 5.

Table 6. Descriptive statistics and univariate associations for conflict variables

Domain: CONFLICT

Variable	Source	Type	Mean	sd	Lowest	Highest	Univariate assoc. with self-harm* r	p	Standardised to ward size	Level entered	Entered as z score
Verbal aggression	PCC-SR	Numeric	0.77	1.50	0.00	18.33	0.007	0.127	Yes	Shift	Yes
Physical aggression against objects	PCC-SR	Numeric	0.15	0.57	0.00	15.71	0.028	<0.001	Yes	Shift	Yes
Physical aggression against others	PCC-SR	Numeric	0.11	0.51	0.00	14.29	0.029	<0.001	Yes	Shift	Yes
Smoking in non smoking area	PCC-SR	Numeric	0.82	1.64	0.00	15.71	0.025	<0.001	Yes	Shift	Yes
Refusing to eat	PCC-SR	Numeric	0.29	0.58	0.00	10.48	-0.003	0.469	Yes	Shift	Yes
Refusing to drink	PCC-SR	Numeric	0.13	0.43	0.00	11.58	-0.006	0.181	Yes	Shift	Yes
Refusing to attend to personal hygiene	PCC-SR	Numeric	0.42	0.86	0.00	10.48	-0.004	0.334	Yes	Shift	Yes
Refusing to get out of bed	PCC-SR	Numeric	0.22	0.61	0.00	13.75	-0.010	0.038	Yes	Shift	Yes
Refusing to go to bed	PCC-SR	Numeric	0.15	0.52	0.00	11.00	0.010	0.030	Yes	Shift	Yes
Refusing to see workers	PCC-SR	Numeric	0.06	0.31	0.00	13.75	0.023	<0.001	Yes	Shift	Yes
Alcohol misuse (suspected or confirmed)	PCC-SR	Numeric	0.11	0.39	0.00	9.00	0.008	0.081	Yes	Shift	Yes
Substance misuse (suspected or confirmed)	PCC-SR	Numeric	0.10	0.40	0.00	9.57	0.002	0.686	Yes	Shift	Yes
Attempting to abscond	PCC-SR	Numeric	0.22	0.70	0.00	12.22	0.012	0.008	Yes	Shift	Yes
Absconding (missing without permission)	PCC-SR	Numeric	0.10	0.36	0.00	10.00	0.020	<0.001	Yes	Shift	Yes
Absconding (official report)	PCC-SR	Numeric	0.06	0.27	0.00	6.00	0.020	<0.001	Yes	Shift	Yes
Refused regular medication	PCC-SR	Numeric	0.29	0.56	0.00	13.75	0.003	0.532	Yes	Shift	Yes
Refused PRN medication	PCC-SR	Numeric	0.10	0.35	0.00	10.00	0.002	0.615	Yes	Shift	Yes
Demanding PRN medication	PCC-SR	Numeric	0.37	0.83	0.00	11.11	0.004	0.351	Yes	Shift	Yes

*Pearson correlation of standardised rate of self-harm with standardised variables where applicable

Containment: Using the ward managers' responses on questions about ward safety and security, compound scores were created for: banned items, searching intensity, restrictions on patients, drug and alcohol sensitivity and monitoring, door security, alarms, and guards. The use of CCTV on the ward or unit did not obviously fit with any of the compound scores, and these variables were therefore entered separately into the analysis. Relevant items from the PCC-SR were also analysed under this heading: main ward door locked to patients leaving, given PRN medication, given IM medication (enforced), sent to Psychiatric Intensive Care Unit or Intensive Care Area, seclusion, special observation (intermittent), special observation (constant with engagement), special observation (constant without engagement), show of force, manually restrained, and time out. Definitions for these items can be found in Appendix 1, and mean ward level frequencies per day in Appendix 5.

Table 7. Descriptive statistics and univariate associations for containment variables

Domain: CONTAINMENT

Variable	Source	Type	Mean or proportion	sd	Lowest	Highest	Univariate assoc. with self-harm* r	p	Standardised to ward size	Level entered	Entered as z score
Banned items	Ward Manager	Numeric	34.88	4.24	25.00	48.00	0.174	0.043	No	Ward	Yes
Searching intensity	Ward Manager	Numeric	15.21	1.93	11.00	22.00	0.203	0.018	No	Ward	Yes
Restrictions on patients	Ward Manager	Numeric	16.79	3.20	11.00	24.00	0.082	0.345	No	Ward	Yes
Drug/Alcohol sensitivity and monitoring	Ward Manager	Numeric	20.60	2.44	14.00	28.00	0.035	0.682	No	Ward	Yes
Door security	Ward Manager	Numeric	7.65	1.24	6.00	12.00	0.128	0.139	No	Ward	Yes
Alarms	Ward Manager	Numeric	11.54	1.54	8.00	14.00	0.162	0.059	No	Ward	Yes
Guards	Ward Manager	Numeric	2.49	0.64	2.00	4.00	-0.014	0.868	No	Ward	Yes
CCTV used on ward	Ward Manager	Categorical	15%				0.131	0.127	No	Ward	No
CCTV used on unit	Ward Manager	Categorical	29%				0.142	0.098	No	Ward	No
PRN medication	PCC-SR	Numeric	0.72	1.04	0.00	12.22	0.032	<0.001	Yes	Shift	Yes
IM medication (enforced)	PCC-SR	Numeric	0.05	0.22	0.00	4.29	0.017	<0.001	Yes	Shift	Yes
Sent to PICU or ICA	PCC-SR	Numeric	0.01	0.13	0.00	6.67	0.005	0.258	Yes	Shift	Yes
Seclusion	PCC-SR	Numeric	0.02	0.19	0.00	10.53	0.010	0.035	Yes	Shift	Yes
Special observation (intermittent)	PCC-SR	Numeric	1.70	2.40	0.00	13.75	-0.047	<0.001	Yes	Shift	Yes
Special observation (constant with engagement)	PCC-SR	Numeric	0.35	0.73	0.00	11.25	0.004	0.357	Yes	Shift	Yes
Special observation (constant without engagement)	PCC-SR	Numeric	0.09	0.51	0.00	15.71	-0.001	0.776	Yes	Shift	Yes
Show of force	PCC-SR	Numeric	0.09	0.44	0.00	12.22	0.018	<0.001	Yes	Shift	Yes
Manually restrained	PCC-SR	Numeric	0.06	0.32	0.00	13.75	0.023	<0.001	Yes	Shift	Yes
Time out	PCC-SR	Numeric	0.10	0.55	0.00	12.94	0.023	<0.001	Yes	Shift	Yes

*Pearson correlation of standardised rate of self-harm with standardised variables where applicable

Table 8. Descriptive statistics and univariate associations for door locking

Domain: CONTAINMENT

Variable	Source	Type	Proportion	F	p	Standardised to ward size	Level entered	Entered as z score
Door not locked	PCC-SR	Categorical	48%	67.39 (4, 42400)	<0.001	No	Shift	No
Door locked < 1 hour			2%					
Door locked 1-3 hours			4%					
Door locked > 3 hours			2%					
Door locked full shift			44%					

When door locking was entered in the model as a categorical variable, 'door not locked' was used as the reference category.

Staff demographics: Numbers and types of staff on duty during the shift were available from the PCC-SR: regular qualified nurses, regular unqualified nurses, bank/agency qualified nurses, bank/agency unqualified nurses, student nurses. From the data submitted by ward managers, the following numbers of staff in post were entered into the analysis: consultant psychiatrists, other doctors, occupational therapists and clinical psychologists. In addition the numbers of consultant psychiatrists who were locums, and the nursing vacancy rate were incorporated in the analysis. Demographic data on the staff team were collected together with the Maslach Burnout Inventory, enabling the calculation, by ward of the proportion of staff: male, aged 30 years and over, ethnicity: White, Irish, Caribbean, African, South Asian, Other.

Table 9. Descriptive statistics and univariate associations for staff demographic variables

Domain: STAFF DEMOGRAPHICS

Variable	Source	Type	Mean	sd	Lowest	Highest	Univariate assoc. with self-harm* r	p	Standardised to ward size	Level entered	Entered as z score
Regular qualified nurses on duty	PCC-SR	Numeric	1.99	0.96	0.00	7.27	0.012	0.008	Yes	Shift	Yes
Regular unqualified nurses on duty	PCC-SR	Numeric	1.55	0.99	0.00	6.67	-0.026	<0.001	Yes	Shift	Yes
Bank/agency qualified nurses on duty	PCC-SR	Numeric	0.33	0.66	0.00	6.67	0.045	<0.001	Yes	Shift	Yes
Bank/agency unqualified nurses on duty	PCC-SR	Numeric	0.65	0.90	0.00	6.67	-0.013	0.007	Yes	Shift	Yes
Student nurses on duty	PCC-SR	Numeric	0.33	0.73	0.00	9.09	0.019	<0.001	Yes	Shift	Yes
Consultant Psychiatrists in post	Ward Manager	Numeric	3.40	1.94	0.00	11.00	-0.011	0.899	No	Ward	Yes
Other doctors in post	Ward Manager	Numeric	3.70	3.43	0.00	21.00	0.004	0.966	No	Ward	Yes
Occupational therapists in post	Ward Manager	Numeric	0.67	0.83	0.00	4.00	0.110	0.204	No	Ward	Yes
Clinical psychologists in post	Ward Manager	Numeric	0.13	0.38	0.00	2.00	0.200	0.020	No	Ward	Yes
Number of Cons. Psychiatrists locums	Ward Manager	Numeric	0.71	0.95	0.00	5.00	-0.235	0.006	No	Ward	Yes
Nursing vacancy rate	Ward Manager	Numeric	0.15	0.12	-0.28	0.48	0.098	0.255	No	Ward	Yes
Proportion staff male	MBI	Numeric	0.35	0.20	0.00	0.86	0.259	0.002	No	Ward	Yes
Proportion staff over 30 years of age	MBI	Numeric	0.76	0.16	0.22	1.00	0.165	0.055	No	Ward	Yes
Proportion of staff white	MBI	Numeric	0.63	0.35	0.00	1.00	-0.566	<0.001	No	Ward	Yes
Proportion of staff Irish	MBI	Numeric	0.03	0.06	0.00	0.29	0.109	0.208	No	Ward	Yes
Proportion of staff African	MBI	Numeric	0.18	0.24	0.00	1.00	0.476	<0.001	No	Ward	Yes
Proportion of staff Caribbean	MBI	Numeric	0.05	0.09	0.00	0.46	0.311	<0.001	No	Ward	Yes
Proportion of staff Asian	MBI	Numeric	0.03	0.08	0.00	0.57	0.222	0.009	No	Ward	Yes
Proportion of staff other ethnicity	MBI	Numeric	0.08	0.12	0.00	0.67	0.278	0.001	No	Ward	Yes

*Pearson correlation of standardised rate of self-harm with standardised variables where applicable

During modelling, the proportion of staff of other ethnicity was excluded as a reference category, as it is fully defined by the other five ethnic categories.

Staff group and attitude factors: The following variables were derived from the questionnaire scores of staff: mean Multifactor Leadership Questionnaire score, mean Team Climate Inventory score, mean Ward Atmosphere Scale score (programme clarity and order and organisation), Ward Atmosphere Scale score (staff control), Attitude to Personality Disorder Scale (total score), mean Maslach Burnout Inventory Score (emotional exhaustion and depersonalisation), Maslach Burnout Inventory Score (personal accomplishment), mean Attitude to Containment Measures Questionnaire staff score.

Table 10. Descriptive statistics and univariate associations for staff group and attitude variables

Domain: STAFF GROUP AND ATTITUDE FACTORS

Variable	Source	Type	Mean	sd	Lowest	Highest	Univariate assoc. with self-harm* r	p	Standardised to ward size	Level entered	Entered as z score
Mean Multifactor Leadership Questionnaire score	MLQ	Numeric	9.09	1.44	3.75	13.10	0.075	0.386	No	Ward	Yes
Mean Team Climate Inventory score	TCI	Numeric	3.58	0.37	2.62	4.73	0.175	0.042	No	Ward	Yes
Mean Ward Atmosphere Scale score (programme clarity and order and organisation)	WAS	Numeric	6.58	0.92	4.18	8.54	0.264	0.002	No	Ward	Yes
Ward Atmosphere Scale score (staff control)	WAS	Numeric	1.76	0.76	0.14	4.34	0.197	0.022	No	Ward	Yes
Attitude to Personality Disorder Scale (total score)	APDQ	Numeric	20.22	1.55	16.56	26.50	0.134	0.119	No	Ward	Yes
Mean Maslach Burnout Inventory Score (emotional exhaustion and depersonalisation)	MBI	Numeric	11.80	3.49	4.69	23.58	0.117	0.176	No	Ward	Yes
Maslach Burnout Inventory Score (personal accomplishment)	MBI	Numeric	35.77	3.06	28.09	45.14	0.166	0.054	No	Ward	Yes
Mean Attitude to Containment Measures Questionnaire	ACMQ	Numeric	39.51	1.82	34.80	43.73	-0.018	0.834	No	Ward	Yes

*Pearson correlation of standardised rate of self-harm with standardised variables where applicable

2.4.3 Analytic method

Multilevel random effects modelling was carried out using MLwiN 2.02 on total Bongar Lethality Scale score for the shift, which was dichotomised into no incidents and incidents, due to distributional problems of the original score (very few incidents). The model was tested to ensure that a binomial distribution was appropriate and that there was no extra binomial variation that needed to be accounted for. Random effects modelling allows for the fact that the wards were only a sample of all possible wards and similarly Trusts were only a sample from all possible Trusts. A three level model was explored with shifts at the lowest level (one), wards at level two and Trusts at level three. That is, shifts were nested in wards, which were nested within Trusts. Shifts were chosen as a level because of clustering effects within AM, PM and Night shifts; wards for similar reasons, and Trusts because they represent organisational units with single local policies and operational procedures. The penalised quasilikelihood method of estimation (PQL) was used with second order linearisation, since this method does not tend to underestimate variance estimates (Ukomunne *et al*, 1999).

The model was produced through a staged process of backward selection, deselecting the least significant at each stage. Each group of variables (domain) described above was used to build a separate initial model, then the significant variables were used to construct a final comprehensive model using the same process of backward selection. A small number of the study wards operated on a two 12 hour shift pattern, so a categorical variable indicating this was incorporated as a constant at every stage of the analysis, without being removed due to not being statistically significant. While there were significant associations between some of the independent variables in our study, sometimes to the extent of multicollinearity (see further below), there was no logical reason why any particular variables should be considered to be intervening, rather than potentially causal in their own right; nor is there any evidence in the existing research literature that this is the case (Kiely, 1991). However it is possible that some variables might play that role, perhaps particularly conflict behaviours other than self-harm. We therefore present the results of the separate domain analyses, as well as the final complete models.

Following the construction of this overarching model, two further models were constructed using the same methods, (i) with minor self-harm (Bongar raw score of 0 or 1, see Appendix 1) as the dichotomous dependent variable, and (ii) with more major self-harm (termed 'moderate', Bongar raw score of two or above, see Appendix 1) as the dichotomous dependent variable. Analyses using higher cut off points were not possible, due to the rarity of incidents at increasing levels of severity.

2.5 Findings

There were 4062 shifts during which a self-harm incident occurred, representing 8.7% of the total. The vast majority of these (3510, or 7.5% of all shifts) were very minor with Bongar scores of 0 or 1.

Tables 11–13 depict the resulting models. The first results column of each table shows the models resulting from within domains analyses, i.e. just the patient variables, or just the service environment variables, and the second results column shows the final combined model. Figures 4–6 graphically display the final combined models with confidence intervals for significant associations.

Table 11. Multilevel models of all self-harm, with odds and confidence intervals

	Domain models				Final combined model			
	Odds	Lower 95% C.I.	Upper 95% C.I.	sig.	Odds	Lower 95% C.I.	Upper 95% C.I.	sig.
Patient								
Proportion schizophrenia	0.793	0.679	0.926	<0.01	0.797	0.679	0.911	<0.01
Proportion under 35	1.292	1.109	1.505	<0.01	1.273	1.096	1.477	<0.01
Proportion Caribbean	1.701	1.445	2.001	<0.001	1.516	1.301	1.766	<0.001
IMD	0.773	0.654	0.913	<0.01	0.812	0.697	0.946	<0.01
Service environment								
Admissions during shift	1.262	1.226	1.300	<0.001	1.257	1.219	1.297	<0.001
Admissions per day	1.255	1.069	1.474	<0.01	1.198	1.039	1.383	<0.05
Physical environment								
None								
Patient routines								
None								
Conflict								
Aggression to objects	1.034	1.002	1.066	<0.05				
Aggression to others	1.059	1.028	1.090	<0.001	1.041	1.009	1.074	<0.05
Refusing to drink	0.960	0.925	0.996	<0.05				
Refusing to go to bed	1.034	1.000	1.069	<0.05				
Refusing to see workers	1.040	1.012	1.069	<0.01	1.037	1.007	1.068	<0.05
Attempting to abscond	1.043	1.009	1.078	<0.05				
Absconding officially reported	1.044	1.012	1.077	<0.01	1.054	1.022	1.088	<0.001
Containment								
door locked < 1 hr	1.270	0.982	1.642	ns	1.226	0.950	1.582	ns
door locked 1-3 hrs	1.221	1.008	1.480	<0.05	1.196	0.991	1.444	ns
Door locked more than three hours	1.514	1.178	1.946	<0.01	1.480	1.156	1.895	<0.01
Door locked full shift	1.240	1.102	1.395	<0.001	1.203	1.070	1.353	<0.01
PRN	1.108	1.070	1.148	<0.001	1.096	1.058	1.136	<0.001
Seclusion	1.030	1.001	1.061	<0.05				
Intermittent observation	0.807	0.763	0.855	<0.001	0.827	0.783	0.874	<0.001
Manual restraint	1.066	1.035	1.098	<0.001	1.045	1.013	1.078	<0.01
Staff demographics								
Qualified nurses on duty	0.946	0.907	0.985	<0.01	0.941	0.901	0.982	<0.01
Student nurses on duty	1.053	1.017	1.091	<0.01	1.050	1.012	1.090	<0.01
Proportion staff white	0.687	0.550	0.859	<0.001				
Staff attitudes/group								
None								

Table 12. Multilevel models of minor self-harm, with odds and confidence intervals

	Domain models				Final combined model			
	Odds	Lower 95% C.I.	Upper 95% C.I.	sig.	Odds	Lower 95% C.I.	Upper 95% C.I.	sig.
Patient								
Proportion schizophrenia	0.742	0.630	0.875	<0.001	0.770	0.662	0.895	<0.001
Proportion under 35	1.328	1.133	1.557	<0.001	1.309	1.125	1.522	<0.001
Proportion white	0.760	0.588	0.982	<0.05				
Proportion Caribbean	1.451	1.156	1.821	<0.001	1.484	1.271	1.733	<0.001
IMD	0.773	0.651	0.916	<0.01	0.828	0.708	0.968	<0.05
Service environment								
Admissions in shift	1.279	1.239	1.320	<0.001	1.275	1.233	1.318	<0.001
Admissions per day	1.335	1.130	1.577	<0.001	1.242	1.075	1.436	<0.01
Physical environment								
Windows in some doors	0.547	0.247	1.210	ns				
Windows in no doors	0.485	0.268	0.876	<0.05				
Patient routines								
Community meeting	1.690	1.034	2.765	<0.05				
Conflict								
Physical aggression against others	1.061	1.030	1.092	<0.001				
Refusing to attend to personal hygiene	0.946	0.906	0.987	<0.05				
Refusing to see workers	1.048	1.020	1.077	<0.01	1.040	1.010	1.071	<0.05
Attempted absconding	1.050	1.014	1.088	<0.01				
Containment								
Door locked less than 1 hour	1.306	0.993	1.718	ns	1.246	0.949	1.636	ns
Door locked 1 - 3 hours	1.255	1.021	1.542	<0.05	1.239	1.012	1.516	<0.05
Door locked more than 3 hours	1.639	1.260	2.131	<0.001	1.603	1.240	2.073	<0.001
Door locked whole shift	1.265	1.114	1.437	<0.001	1.246	1.097	1.415	<0.001
PRN medication	1.069	1.028	1.112	<0.001	1.061	1.020	1.103	<0.01
Intermittent special observation	0.813	0.765	0.864	<0.001	0.834	0.786	0.884	<0.001
Manual restraint	1.062	1.029	1.096	<0.001	1.052	1.020	1.086	<0.01
Staff demographics								
Qualified nurses on duty	0.949	0.909	0.991	<0.05	0.943	0.899	0.988	<0.05
Unqualified nurses on duty	1.053	1.007	1.102	<0.05	1.058	1.009	1.109	<0.05
Student nurses on duty	1.058	1.019	1.098	<0.01	1.057	1.016	1.099	<0.01
Proportion of staff white	0.657	0.521	0.828	<0.001				
Staff attitudes/group								
None								

Table 13. Multilevel models of moderate self-harm, with odds and confidence intervals

	Domain models				Final combined model			
	Odds	Lower 95% C.I.	Upper 95% C.I.	sig.	Odds	Lower 95% C.I.	Upper 95% C.I.	sig.
Patient								
Proportion Caribbean	1.493	1.124	1.984	<0.01	1.477	1.125	1.940	<0.01
IMD	0.694	0.508	0.947	<0.05				
Service environment								
Assertive outreach team	0.479	0.235	0.976	<0.05				
Admissions on shift	1.105	1.014	1.205	<0.05	1.101	1.010	1.200	<0.05
Physical environment								
None								
Patient routines								
Patient activity sessions	0.553	0.384	0.796	<0.001	0.537	0.382	0.755	<0.001
Conflict								
Physical aggression against objects	1.120	1.066	1.176	<0.001	1.110	1.054	1.168	<0.001
Absconding (official report)	1.108	1.033	1.190	<0.01	1.124	1.050	1.204	<0.001
Demanding PRN medication	1.119	1.038	1.205	<0.01				
Containment								
Given PRN medication	1.259	1.166	1.359	<0.001	1.221	1.132	1.318	<0.001
Intermittent observation	0.830	0.727	0.949	<0.01	0.872	0.768	0.990	<0.05
Show of force	1.079	1.015	1.147	<0.05				
Manual restraint	1.062	1.003	1.124	<0.05	1.080	1.028	1.134	<0.01
Staff demographics								
Consultant psychiatrists in post	1.443	1.069	1.948	<0.05				
Proportion of staff white	0.696	0.494	0.981	<0.05				
Staff attitudes/group								
None								

These same models are graphically displayed in the following three charts. Figure 4 depicts the odds, and associated 95% confidence interval (95% CI), for the full model, of a variable increasing or decreasing the chance of self-harm. Values below one indicate a significant reduction in the chances of self-harm for that variable and a value above one indicates a significantly increased chance. Values that straddle the value one have no significant effect. A wide confidence interval indicates large uncertainty about the estimate and a small CI indicates less uncertainty.

It can be seen that the proportion of patients admitted with a diagnosis of schizophrenia is associated with decreases in the chance of self-harm along with IMD, intermittent observation and having qualified staff on duty. Doors locked for less than three hours have no significant association but for any periods greater than this there is a significant chance of self-harm. Having the door locked for more than three hours, rather than the whole shift, shows the greatest odds of increasing self-harm but there is more uncertainty around the level of association this variable has. All the other variables are associated with an increased significant chance of a self-harm incident.

Figure 4. Full model of variables associated with self-harm rates, odds and 95% confidence intervals

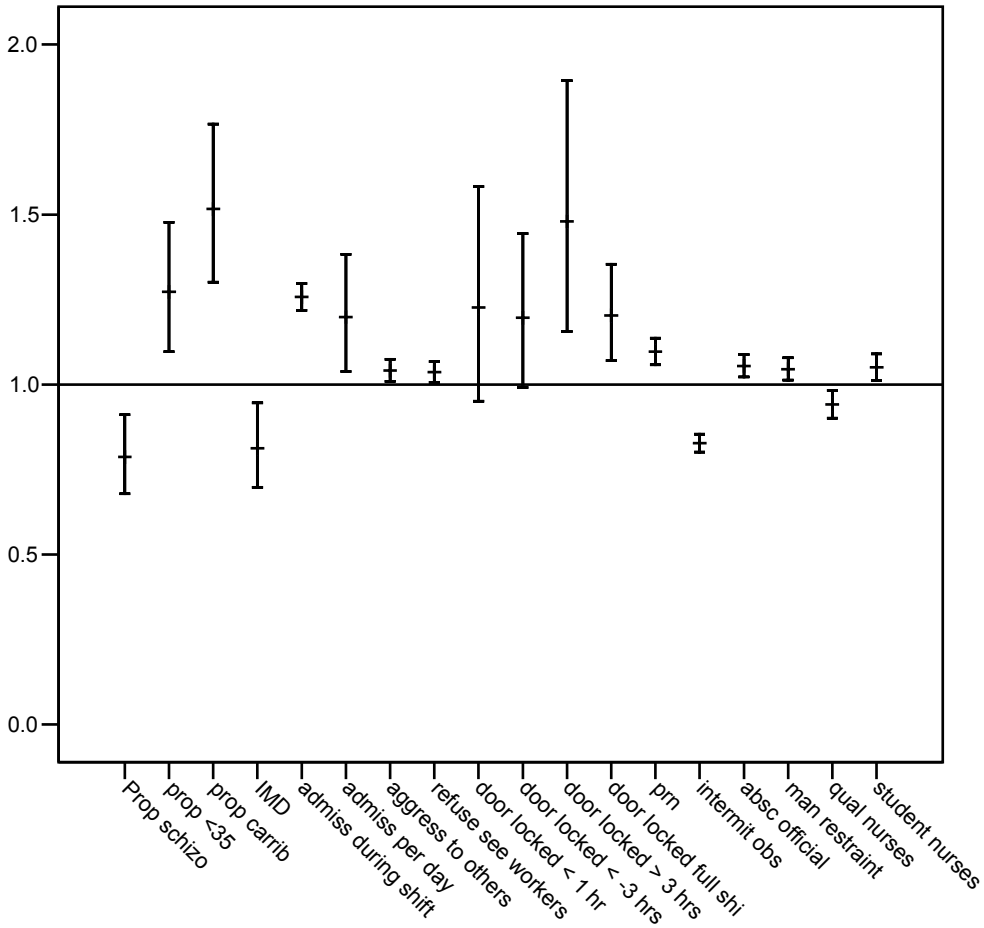


Figure 5 depicts the odds, and associated 95% CI, of a variable being associated with an increase or decrease in the chances of minor self-harm occurring. In a similar way to the full model it can be seen that the proportion of patients admitted with a diagnosis of schizophrenia is associated with a reduced chance of minor self-harm along with IMD, intermittent observation and having qualified staff on duty. Doors locked for less than one hour have no significant effect but for any periods greater than this there is a significant chance of minor self-harm. As in the full model having the door locked for more than three hours, rather than the whole shift, shows the strongest association with minor self-harm but there is more uncertainty around the level of effect this variable has. All the other variables are associated with an increased significant chance of minor a self-harm incident.

Figure 5. Variables associated with rates of minor self-harm, odds and 95% confidence intervals

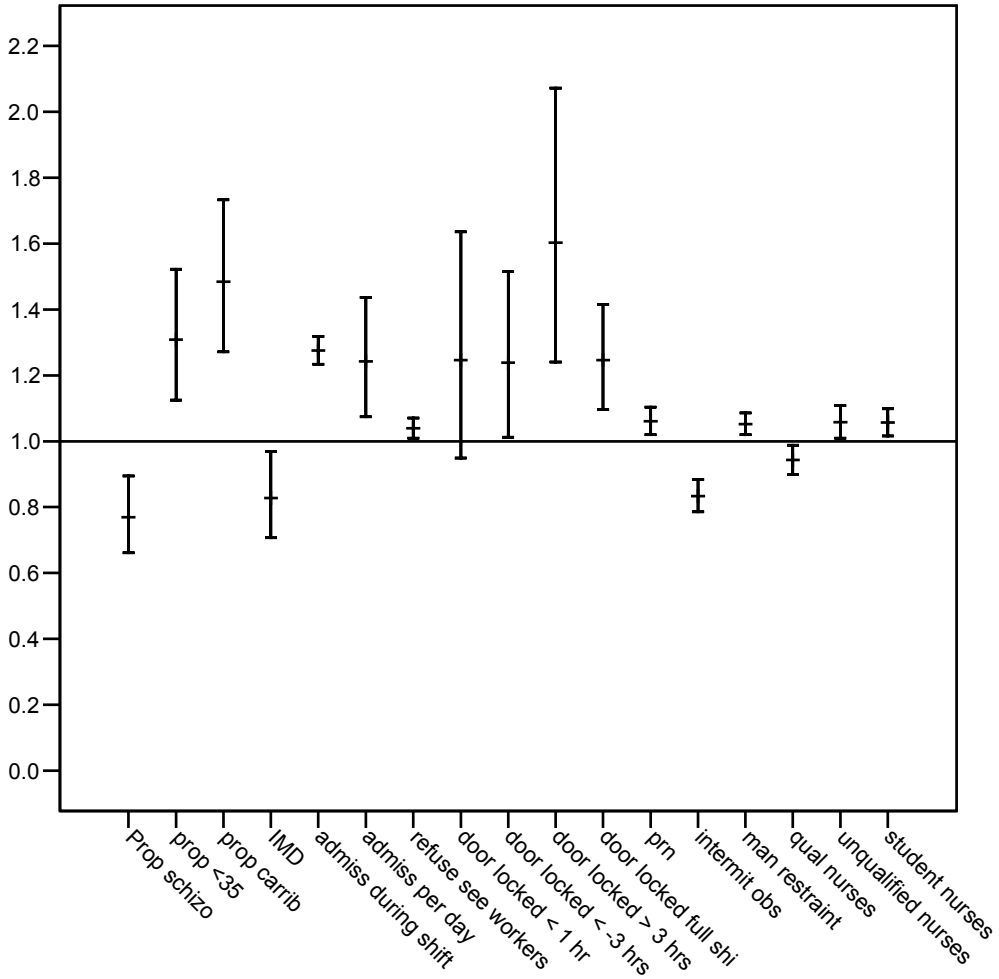
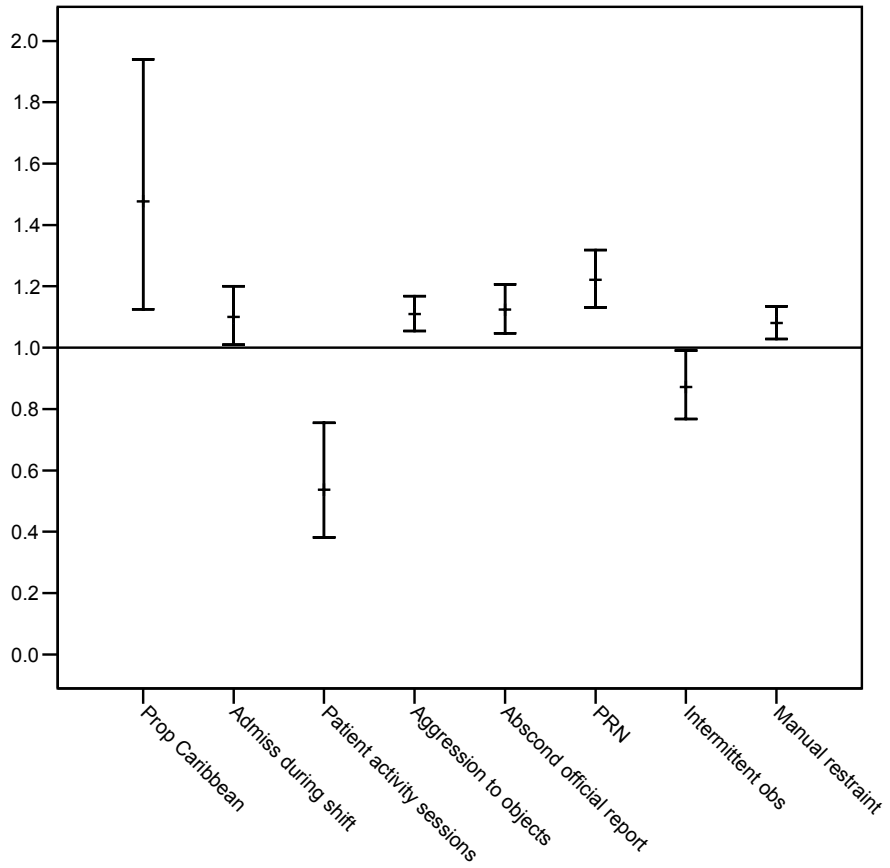


Figure 6 depicts the odds, and associated 95% CI, of a variable increasing or decreasing the chance of moderate self-harm. The variables that are associated with reduced moderate self-harm are having planned patient activities and intermittent observation. For all the other variables there is an increased significant chance of a moderate self-harm incident. Whilst the proportion of patients admitted of Caribbean ethnicity show the greatest significant odds of a moderate self-harm incident, there is also more uncertainty around the actual level of effect this variables has.

Figure 6. Variables associated with rates of moderate self-harm, odds and 95% confidence intervals



2.6 Multicollinearity

As already reported, several elements of the dataset were consolidated prior to analysis, ward observability, physical environment quality, banned items, restrictions, etc., in order to provide for meaningful results, and to reduce the total number of variables to a manageable level. This process is also likely to have reduced the risk of potential problems with multicollinearity. In addition, it was observed that some of the questionnaires producing more than one score were highly correlated with themselves (0.7 or larger). Where this occurred compound measures were created, or where the scale provided for a single score as well as several sub scores, the single score only was used.

Two methods were used to assess whether multicollinearity among the independent variables had influenced our resulting models. Firstly, pair wise correlations of continuous variables in the models were examined. Belsey *et al* (1980) state that values less than 0.7 indicate that there is no serious multicollinearity. All were less than 0.4, indicating that there is no multicollinearity. The second test for multicollinearity was using the Variance Inflation Factor (VIF). The VIF indicates the increase in variance when multicollinearity exists in the independent variables. VIF values should be close to one and Neter *et al* (1996) indicate that a value exceeding ten shows unacceptable multicollinearity. Our VIF values are no larger than 1.4 for the all self-harm, 1.5 for the minor self-harm, and 1.1 for the moderate self-harm models.

2.7 Variance partitioning

In order to elucidate at which levels of the models associations of variables with self-harm were impacting, variance was partitioned using method D of Goldstein *et al* (2002). Results are presented in Tables 14–16. Increases in variation on variable entry indicate the level at which associations impacted.

Table 14. Variance partitioning for the all self-harm model

	Level entered in model	Trust variation	Change on variable entry	Ward variation	Change on variable entry	Shift variation	Change on variable entry
Overall variation (no explanatory variables)		**12.30%**		**11.20%**		**76.50%**	
Patient							
Proportion schizophrenic	Ward	53.30%	41.00%	46.70%	35.50%	0%	-76.50%
Proportion under 35 yrs	Ward	51.20%	39.00%	48.80%	37.60%	0%	-76.50%
Proportion Caribbean	Ward	28.50%	16.20%	71.50%	60.30%	0%	-76.50%
IMD	Ward	51.90%	39.60%	48.10%	36.90%	0%	-76.50%
All patient variables combined		7.80%	-4.50%	92.20%	81.10%	0%	-76.50%
Service environment							
Admissions in shift	Shift	11.00%	-1.30%	11.00%	-0.20%	78.00%	1.50%
Admissions per day	Ward	37.50%	25.20%	62.50%	51.30%	0%	-76.50%
All service environment variables combined		7.00%	-5.30%	11.70%	0.60%	81.30%	4.70%
Conflict							
Aggression to others	Shift	12.30%	0.00%	11.00%	-0.20%	76.70%	0.10%
Refusing to see workers	Shift	12.25	-0.10%	12.10%	0.90%	75.80%	-0.80%
Absconding officially reported	Shift	12.30%	0.00%	11.00%	-0.20%	76.70%	0.10%
All conflict variables combined		12.20%	-0.10%	11.00%	-0.20%	76.80%	0.20%
Containment							
Door locking	Shift	10.10%	-2.20%	12.10%	0.90%	77.80%	1.30%
Given PRN medication	Shift	12.60%	0.30%	10.60%	-0.50%	76.70%	0.20%
Intermittent observation	Shift	11.80%	-0.50%	11.10%	-0.10%	77.10%	0.60%
Manual restraint	Shift	12.50%	0.20%	11.00%	-0.20%	76.60%	0.00%
All containment variables combined		9.40%	-2.80%	11.90%	0.70%	78.70%	2.10%
Staff demographics							
Qualified nurses on duty	Shift	12.50%	0.30%	11.00%	-0.20%	76.40%	-0.10%
Student nurses on duty	Shift	12.20%	-0.10%	11.00%	-0.20%	76.80%	0.20%
All staff demographic variables combined		12.60%	0.30%	11.00%	-0.20%	76.40%	-0.10%
FULL MODEL (all variables)		0.20%	-12.10%	12.40%	1.20%	87.50%	10.90%

Table 15. Variance partitioning for the minor self-harm model

	Level entered in model	Trust variation	Change on variable entry	Ward variation	Change on variable entry	Shift variation	Change on variable entry
Overall variation (no explanatory		**12.30%**		**12.00%**		**75.70%**	
Patient							
Proportion schizophrenic	Ward	52.80%	40.50%	47.20%	35.20%	0.00%	-75.70%
Proportion under 35 yrs	Ward	52.80%	38.40%	49.40%	37.40%	0.00%	-75.70%
Proportion Caribbean	Ward	28.50%	16.20%	71.50%	59.50%	0.00%	-75.70%
IMD	Ward	51.70%	-1.00%	48.30%	1.00%	0.00%	-75.70%
All patient variables combined		8.80%	-3.50%	91.20%	79.20%	0.00%	-75.70%
Service environment							
Admissions in shift	Shift	11.40%	-0.80%	11.60%	-0.40%	76.90%	1.20%
Admissions per day	Ward	32.20%	20.00%	67.80%	55.80%	0	-75.70%
All service environment variables combined		6.00%	-6.20%	12.70%	0.70%	81.20%	5.50%
Conflict							
Refusing to see workers	Shift	13.00%	0.70%	11.70%	-0.30%	75.20%	-0.40%
Containment							
Door locking	Shift	10.50%	-6.20%	12.40%	0.40%	77.10%	1.40%
Given PRN medication	Shift	13.10%	0.90%	11.50%	-0.50%	77.10%	1.40%
Intermittent observation	Shift	12.40%	0.20%	11.80%	-0.20%	75.80%	0.10%
Manual restraint	Shift	13.10%	0.80%	11.70%	-0.30%	75.20%	-0.50%
All containment variables combined		9.80%	-2.50%	12.40%	0.30%	77.90%	2.10%
Staff demographics							
Qualified nurses on duty	Shift	13.10%	0.80%	11.70%	-0.30%	75.20%	-0.50%
Unqualified nurses on duty	Shift	13.10%	0.80%	11.70%	-0.30%	75.20%	-0.60%
Student nurses on duty	Shift	12.80%	0.50%	11.70%	-0.30%	75.60%	-0.20%
All staff demographic variables combined		13.40%	1.10%	11.70%	-0.30%	74.90%	-0.80%
FULL MODEL (all variables)		0.00%	-12.30%	11.80%	-0.20%	88.20%	12.40%

Table 16. Variance partitioning for the moderate self-harm model

	Level entered in model	Trust variation	Change on variable entry	Ward variation	Change on variable entry	Shift variation	Change on variable entry
Overall variation (no explanatory		**6.40%**		**29.70%**		**63.90%**	
Patient							
Proportion Caribbean	Ward	7.20%	0.80%	92.80%	63.10%	0.00%	-63.90%
Service environment							
Admissions in shift	Shift	11.40%	5.00%	11.60%	-18.00%	76.90%	13.00%
Patient routines							
Patient activity sessions	Ward	14.00%	7.60%	86.00%	56.30%	0.00%	-63.90%
Conflict							
Aggression towards objects	Shift	6.40%	0.00%	29.60%	-0.10%	64.00%	0.10%
Absconding officially reported	Shift	13.00%	6.60%	11.70%	-18.00%	75.40%	11.40%
All Conflict variables combined		6.30%	-0.10%	29.70%	0.00%	64.00%	0.10%
Containment							
Given PRN medication	Shift	6.50%	0.10%	28.90%	-0.80%	64.60%	0.70%
Intermittent observation	Shift	5.80%	-0.60%	30.20%	0.50%	64.00%	0.10%
Manual restraint	Shift	6.50%	0.10%	29.60%	-0.10%	63.90%	0.00%
All containment variables combined		5.80%	-0.60%	29.10%	-0.60%	65.10%	1.20%
FULL MODEL (all variables)		0.00%	-6.40%	29.70%	0.00%	70.30%	6.40%

In all three models, the patient variables can only act at Trust and ward level. The variance that is within the model that can be attributed to patient factors is mainly within the wards. The proportion of admissions suffering from schizophrenia, the proportion under 35 years of age and the IMD seem to act equally at Trust and ward level, but the proportion of Caribbean patients acts mainly at ward level.

For the service environment domain, admissions per day cannot act at shift level but at higher levels, and the majority of variance explained is at ward level. However, for 'admissions during shift' the effect is to reduce the variance at ward and Trust level and to increase the variation at shift level indicating the level of the effect. This pattern of effects is reproduced in the minor self-harm model. However in the moderate self-harm model, 'admissions per day' drops out as not statistically significant, and in this case the variance explained by 'admissions during the shift' increases at both shift and Trust level. Perhaps together these finding suggest that admissions impact at all three levels, in each case with larger numbers associated with more self-harm.

For the conflict behaviour domain there is a mixed picture, as 'refusing to see workers' acts more on a ward level basis in the all self-harm model, but aggression and absconding relate to increases of self-harm at shift level. The picture is rather confused, because in the two subsidiary models the levels of effect for these items vary. For example, for moderate self-harm absconding impacts at the Trust, rather than the shift, level. No clear conclusions about levels of effects can be drawn from this mixed set of results.

For the containment domain, all variables increase the variance explained at shift level, except manual restraint which acts at trust level. However PRN medication and manual restraint also increase explained variation at Trust level, perhaps reflecting the impact of Trust-wide policies relating to the use of these containment measures. Although Trust level effects are indicated in all three models, especially for manual restraint, all three models confirm that there are effects at shift level, potentially indicating direct causal connections.

For staff demographics, 'qualified nursing staff on duty' seems to be associated with self-harm at the level of Trust, perhaps indicating that this variable represents some underlying dimension of Trust functioning. It is interesting to note that the presence of student nurses in the all self-harm model shows the opposite pattern, with association with self-harm impacting at the shift level, perhaps indicating a more direct influence. However, in the minor self-harm model all staff variables impact at the Trust level, suggesting that the strongest evidence is that these reflect a dimension of Trust functioning.

Overall the variables increase the variation explained at shift level, and are generally working at that level.

2.8 Sensitivity analyses

Three analyses were conducted to assess the sensitivity of the above results to different ways of dealing with missing data. In the first of these exercises, the ten lowest responding wards, returning less than 196 PCC-SR forms, were excluded and the multilevel model of all self-harm conducted again. The results are provided in Table 17. In the second exercise, the ten wards that declined most sharply in their response rates over the course of the study (correlation response rate/week with time by week of less than – 0.67) were excluded and the modelling exercise conducted again. These results are provided in Table 18. Finally, the effect of excluding admissions where three or more data items were missing (excluding postcodes) was assessed, and the results are presented in Table 19.

Excluding the ten lowest responding wards (Table 17) has no effect on the domain models or the full model, producing an identical result. Excluding those wards with the steepest declines in response rates (Table 18) also has little effect, with fewer conflict behaviours within the domain model, and the substitution of 'proportion of staff African' for 'proportion of staff white' in the Staff demographics domain. Despite these changes to the domain models, the full model is only slightly different from that produced by including all the data, with the added inclusion of proportion of admissions considered to pose a risk of harm to others becoming significant, and aggression towards objects substituting for aggression to others. The use of a more conservative criterion for the inclusion of admission data (Table 19) also impacts on findings related to ethnicity, as well as removing the variable 'admissions per day' from both the domain and full models. In relation to patient characteristics, this model leads to the substitution of 'proportion of patients Caribbean' with 'proportion of patients white'. However the proportion of patients white was highly correlated ($r = 0.79$) with the proportion of staff white, which is in the staff demographics domain, introducing a problem with collinearity. A mean of these two variables was therefore taken for inclusion in the full model.

Table 17. Multilevel model for all self-harm, lowest ten responding wards excluded

	Domain models				Final combined model			
	Odds	Lower 95% C.I.	Upper 95% C.I.	sig.	Odds	Lower 95% C.I.	Upper 95% C.I.	sig.
Patient characteristics								
Proportion schizophrenia	0.751	0.640	0.882	<0.001	0.714	0.606	0.842	<0.001
Proportion under 35	1.259	1.076	1.472	<0.01	1.247	1.060	1.468	<0.01
Proportion harm to others	1.220	1.007	1.479	<0.05	1.240	1.015	1.514	<0.05
Proportion caribbean	1.542	1.331	1.786	<0.001	1.381	1.174	1.625	<0.001
IMD	0.736	0.633	0.855	<0.001	0.804	0.683	0.946	<0.01
Service environment								
Admissions during shift	1.265	1.228	1.303	<0.001	1.261	1.222	1.301	<0.001
Admissions per day	1.273	1.081	1.497	<0.01	1.188	1.029	1.370	<0.05
Physical environment								
None								
Patient routines								
None								
Conflict								
Aggression to objects	1.036	1.004	1.069	<0.05				
Aggression to others	1.058	1.027	1.089	<0.001	1.041	1.009	1.074	<0.01
Refusing to drink	0.959	0.924	0.995	<0.05				
Refusing to go to bed	1.034	1.000	1.069	<0.05				
Refusing to see workers	1.041	1.013	1.070	<0.01	1.039	1.009	1.070	<0.01
Attempting to abscond	1.040	1.006	1.075	<0.05				
Absconding (officially reported)	1.043	1.011	1.076	<0.01	1.052	1.020	1.086	<0.01
Containment								
door locked < 1 hr	1.289	0.995	1.670	ns	1.246	0.964	1.611	ns
door locked 1-3 hrs	1.239	1.020	1.504	<0.05	1.219	1.006	1.477	<0.05
Door locked more than three hours	1.553	1.201	2.007	<0.001	1.531	1.189	1.972	<0.001
Door locked full shift	1.250	1.109	1.409	<0.001	1.210	1.074	1.364	<0.01
PRN	1.104	1.066	1.144	<0.001	1.093	1.055	1.132	<0.001
Seclusion	1.033	1.003	1.063	<0.05				
Intermittent observation	0.803	0.759	0.850	<0.001	0.823	0.777	0.871	<0.001
Manual restraint	1.069	1.038	1.101	<0.001	1.048	1.016	1.082	<0.01
Staff demographics								
Qualified nurses on duty	0.946	0.907	0.985	<0.01	0.938	0.898	0.979	<0.01
Student nurses on duty	1.051	1.015	1.089	<0.01	1.047	1.009	1.087	<0.05
Proportion staff white	0.677	0.541	0.847	<0.001				
Staff attitudes/group								
None								

Table 18. Multilevel model for all self-harm, lowest ten wards with steepest decline in response rates excluded

	Domain models				Final combined model			
	Odds	Lower 95% C.I.	Upper 95% C.I.	sig.	Odds	Lower 95% C.I.	Upper 95% C.I.	sig.
Patient characteristics								
Proportion schizophrenia	0.799	0.673	0.947	<0.01	0.800	0.681	0.940	<0.01
Proportion under 35	1.322	1.123	1.555	<0.001	1.294	1.106	1.514	<0.01
Proportion caribbean	1.714	1.446	2.033	<0.001	1.542	1.313	1.811	<0.001
IMD	0.774	0.650	0.922	<0.01	0.807	0.688	0.945	<0.01
Service environment								
Admissions during shift	1.266	1.227	1.307	<0.001	1.261	1.222	1.301	<0.001
Admissions per day	1.267	1.067	1.506	<0.01	1.195	1.027	1.389	<0.05
Physical environment								
None								
Patient routines								
None								
Conflict								
Aggression to objects	1.042	1.008	1.077	<0.05	1.042	1.010	1.075	<0.05
Aggression to others	1.060	1.027	1.093	<0.001				
Refusing to see workers	1.044	1.016	1.073	<0.01	1.041	1.011	1.072	<0.01
Absconding (officially reported)	1.049	1.017	1.083	<0.01	1.057	1.024	1.090	<0.001
Containment								
door locked < 1 hr	1.361	1.048	1.766	<0.05	1.311	1.012	1.698	<0.05
door locked 1-3 hrs	1.177	0.968	1.432	ns	1.163	0.960	1.409	ns
Door locked more than three hours	1.520	1.181	1.958	<0.01	1.480	1.154	1.898	<0.01
Door locked full shift	1.235	1.096	1.392	<0.001	1.191	1.055	1.345	<0.01
PRN	1.105	1.065	1.147	<0.001	1.092	1.052	1.133	<0.001
Seclusion	1.033	1.003	1.063	<0.05				
Intermittent observation	0.803	0.757	0.852	<0.001	0.822	0.777	0.870	<0.001
Manual restraint	1.066	1.033	1.100	<0.001	1.049	1.015	1.085	<0.01
Staff demographics								
Qualified nurses on duty	0.943	0.905	0.982	<0.01	0.937	0.896	0.980	<0.01
Student nurses on duty	1.045	1.009	1.083	<0.05	1.040	1.002	1.079	<0.05
Proportion of staff African	1.366	1.084	1.722	<0.01				
Staff attitudes/group								
None								

Table 19. Multilevel model for all self-harm, admissions with more than three data items missing excluded

	Domain models				Final combined model			
	Odds	Lower 95% C.I.	Upper 95% C.I.	sig.	Odds	Lower 95% C.I.	Upper 95% C.I.	sig.
Patients								
Proportion schizophrenia	0.823	0.687	0.985	<0.05	0.807	0.677	0.963	<0.05
Proportion under 35	1.204	1.022	1.420	<0.05	1.236	1.048	1.457	<0.05
Proportion white	0.676	0.535	0.856	<0.01				
IMD	0.777	0.636	0.949	<0.05	0.811	0.675	0.976	<0.05
Service environment								
Admissions during shift	1.083	1.050	1.118	<0.001	1.083	1.048	1.120	<0.001
Physical environment								
None								
Patient routines								
None								
Conflict								
Aggression to objects	1.034	1.002	1.066	<0.05				
Aggression to others	1.059	1.028	1.090	<0.001	1.045	1.013	1.078	<0.01
Refusing to drink	0.960	0.925	0.996	<0.05				
Refusing to go to bed	1.034	1.000	1.069	<0.05				
Refusing to see workers	1.040	1.012	1.069	<0.01	1.040	1.010	1.071	<0.01
Attempting to abscond	1.043	1.009	1.078	<0.05				
Absconding officially reported	1.044	1.012	1.077	<0.01	1.055	1.023	1.089	<0.01
Containment								
door locked < 1 hr	1.270	0.982	1.642	ns	1.262	0.977	1.632	ns
door locked 1-3 hrs	1.221	1.008	1.480	<0.05	1.206	0.995	1.461	ns
Door locked more than three hours	1.514	1.178	1.946	<0.01	1.495	1.163	1.921	<0.01
Door locked full shift	1.240	1.102	1.395	<0.001	1.221	1.086	1.374	<0.01
PRN	1.108	1.070	1.148	<0.001	1.103	1.063	1.145	<0.001
Seclusion	1.030	1.001	1.061	<0.05				
Intermittent observation	0.807	0.763	0.855	<0.001	0.816	0.771	0.864	<0.001
Manual restraint	1.066	1.035	1.098	<0.001	1.046	1.014	1.079	<0.01
Staff demographics								
Qualified nurses on duty	0.946	0.907	0.985	<0.01	0.944	0.902	0.987	<0.05
Student nurses on duty	1.053	1.017	1.091	<0.01	1.054	1.016	1.094	<0.01
Proportion staff white	0.687	0.550	0.859	<0.001				
Staff attitudes/group								
None								
Patient/staff proportion white					0.641	0.502	0.820	<0.001

Therefore the majority of findings from the modelling exercise must be considered robust, as they are reproduced repeatedly in these differing analyses of sensitivity to missing data. For example, the inverse correlation of intermittent observation with self-harm is found under all conditions, as are all other associations apart from two. Less confidence can be expressed about the association found between self-harm rates and Caribbean ethnicity. Although the data shows that there are links between self-harm rates and patient/staff ethnicity, it is less certain exactly what those links are. A degree of caution must also be expressed about the finding of a link between rate of admissions per day and self-harm rates. However there is clearly still a link between admissions during the shift and self-harm, so more admissions are confirmed to be associated with self-harm rates.

3 Constructing a typology of wards

3.1 Aim

To develop a typology of ward functioning in relation to patient–staff conflict.

3.2 Method

Cluster analysis and factor analysis were conducted, with comparison between the results of both methods and an assessment of the relationship of identified typologies with other variables.

3.2.1 Data analysis

Cluster analysis: Cluster analysis is best understood as an exploratory, theory-building statistical technique. It seeks to identify natural clusters within the data, and is therefore a classificatory exercise based on assessing degrees of difference and similarity between cases. There are many different cluster analytic techniques, and to a degree they result in different groupings being found in the same data. As Cluster analysis can only deal with relatively small numbers of cases, we first summarised our data so that each row represented a single case, or hospital ward, and variables were summarised as mean values, adjusted for bed numbers in the case of conflict and containment events. Median-linkage cluster analysis was chosen as the method of choice, as most variables were somewhat skewed, with smaller numbers of cases with high values.

Factor analysis: Rather than classify wards into one or other discrete categories, factor analysis identifies underlying dimensions present in a dataset, thus any one ward can express each of these underlying dimensions to differing degrees. This technique of analysis is also exploratory, and was applied to the same data as the cluster analysis. Principal components factor analysis was chosen, as this does not require variables to be normally distributed.

STATA v8 was used for both analyses.

3.3 Findings

3.3.1 Cluster Analysis

The median-linkage hierarchical cluster analysis was conducted. As this method produces reversals in the dendrogram, the result cannot be graphically displayed. Inspection of the Calinski and Harabasz (1974) pseudo-F index, and Duda and Hart (1973) Je(2)/Je(1) index, indicated that the three cluster solution was the most distinct. This three cluster solution is summarised in Table 20.

Table 20. Three cluster solution

	Cluster 1	Cluster 2	Cluster 3
Security policies			
Banned items total score	H	L	H
Searching intensity total	H	L	L
Restrictions on patients total	H	L	M
Drug and alcohol sensitivity and monitoring total	H	M	L
Door security total	L	L	H
Alarms total score			
Guards total score			
Door locking			
Mean door lock score per shift (PCC)	H	L	M
Conflict events			
Verbal abuse	L	L	H
Aggression to objects	M	L	H
Physical assault	M	L	H
Smoking in ns area	H	L	H
Refusing to eat	M	L	H
Refusing to drink	H	L	L
Refusing to wash	M	L	H
Refusing to get up	M	L	H
Refusing to go to bed	M	L	H
Refusing to see workers	H	L	H
Alcohol use			
Drug use	M	L	H
Attempts to abscond	L	L	H
Absconding (missing)			
Absconding (official report)			
Refused reg meds	M	L	H
Refused prn meds	L	L	H
Demand prn meds	M	L	H
Total Bongar	H	L	L
Containment methods			
Given prn	L	M	H
Given IM	L	L	H
Sent to PICU or ICA			
Seclusion			
Int obs	L	M	H
All special observation (constant)	M	L	H
Show of force	L	L	H
Manual restraint	L	L	H
time out	M	L	H

H = high, M = medium, L = low

Using ANOVA and Chi Square tests, these clusters were related to other variables in our dataset, producing Table 21.

Table 21. Relationship of clusters to other variables

Cluster	1	2	3
n	76	39	20
Containment	High on security and door locking, low-medium on other containment measures	Low on security, door locking and other containment measures	Inconsistent on security (some high, some low), medium door locking, and high use of other containment measures
Conflict	Medium conflict levels with some inconsistency, high self-harm	Low conflict of all types, including self-harm	High conflict, low self-harm
Ward operation	More likely to serve multiple sectors, more likely to be single sex, much more likely to use internal rotation for night cover, more likely to hold community meetings	More likely to be for both genders, more likely to use internal rotation for night cover, less likely to hold community meetings	More likely to be for both genders, less likely to use internal rotation for night cover, very much more likely to hold community meetings
Physical environment	Low bed numbers, high ease of observation	High bed numbers, low ease of observation	Low bed numbers, high ease of observation
Patients	High admission rate, low health and disability deprivation	High admission rate, low health and disability deprivation, low indoor environment deprivation	Low admission rate, high health and disability deprivation, high indoor environment deprivation
Staff demography	Medium nurses/bed, medium numbers of staff on duty, medium numbers of bank and agency staff on duty, medium numbers of unqualified staff on duty, low numbers white staff	Low nurses/bed, high proportion qualified nurses, low number of staff on duty, low numbers of bank and agency staff on duty, low numbers of unqualified staff on duty	High nurses/bed, low proportion qualified nurses, high number staff on duty, high numbers of bank and agency staff on duty, high numbers of unqualified staff on duty, high numbers white staff
Staff psychology	High belief in containment efficacy and safety for patients, high support for innovation, vision and task orientation	Low belief in containment efficacy and safety for patients	Low support for innovation, vision and task orientation

The three clusters identified clearly have some meaning. Cluster 1 could be characterised as high conflict, inconsistent security and high containment; Cluster 2 low conflict, low security, low containment; and Cluster 3 high conflict, inconsistent security and high containment.

We can learn several things from the make up of these clusters. Firstly, the use of more intensive security policies is incompletely associated with the use of other more specific containment measures. Secondly, most conflict items seem to group together within the clusters with high and low levels together, except for self-harm.

The clusters are associated with other variables, but not strongly or consistently with staff attitudes, patient characteristics, or the physical environment of the ward. Instead the pattern of associations suggests that organisational factors may underlie the identified clusters, in that staffing numbers and the ways wards operate are related to the clusters. A test of association between the clusters and NHS Trusts is statistically significant ($\chi^2 = 77.94$, df = 50, p = 0.007), and supports this interpretation. Clusters also significantly varied by research centre or region of the country covered ($\chi^2 = 11.39$, df = 4, p = 0.023).

3.3.2 Factor analysis

Principal components factor analysis followed by varimax rotation identified ten factors with eigenvalues greater than one, explaining in total 68% or the variance between the wards. Inspection of the scree plot did not allow the easier identification of a smaller number of factors. Setting a lower limit on the variance explained per factor of 5%, and searching for the most meaningful and readily interpretable solution, led to the choice of the five-factor solution. Excluding all item loadings below 0.3 resulted in the following five factors depicted in Table 22.

Table 22. Rotated factor loadings above 0.3 (or less than -0.3).

Variable	Factor				
	1	2	3	4	5
Secuity Policies					
Banned items total score			0.65		
Searching intensity total			0.55	0.32	
Restrictions on patients total			0.72		
Drug and alcohol sensitivity and monitorir				0.37	
Door security total			0.45		
Alarms total score				0.55	
Guards total score					
Door locking					
Mean door lock score per shift (PCC)			0.57	-0.31	
Conflict events					
Verbal abuse	0.81				
Aggression to objects	0.77				
Physical assault	0.77				
Smoking in ns area	0.41	0.38			
Refusing to eat	0.38			-0.54	
Refusing to drink	0.43			-0.52	
Refusing to wash	0.57	0.37		-0.49	
Refusing to get up	0.46	0.40		-0.50	
Refusing to go to bed	0.60				
Refusing to see workers	0.56				
Alcohol use		0.73			
Drug use		0.79			
Attempts to abscond	0.54				
Absconding (missing)		0.66			
Absconding (official report)		0.68			
Refused reg meds	0.77				
Refused prn meds	0.67				
Demand prn meds	0.35	0.38		0.34	
Total Bongar					-0.35
Containment methods					
Given prn	0.55				
Given IM	0.67				
Sent to PICU or ICA					
Seclusion		0.45			
Intermittent observation					0.72
All special observation (constant)					0.61
Show of force	0.84				
Manual restraint	0.82				
Time out	0.66				

Factor 1 brings together most conflict events, with the notable exceptions of self-harm, drug and alcohol use, and actual absconding, and the majority of containment methods, excluding special observation. Factor 2 brings together use of drugs and alcohol, and absconding. Factor 3 consists of most security policies, without any conflict or other containment items. Factor 4 brings together lower rule breaking with less door locking, higher alarms, searching, and drug/alcohol monitoring and testing. Factor 5 brings together high levels of both types of special observation and lower levels of self-harm.

Using regression and ANOVA, these factors were related to other variables in the dataset, producing Table 23.

Factor 1 links high conflict and containment measures with service, patient and staff characteristics, including the coerced admission of higher risk patients from high deprivation and crime environments that have no additional community teams, to wards with more unstable and younger staff groups who are less well organised and more burnt out.

Factor 2 links absconding with drug and alcohol use and seclusion, associated with male wards, more young, male, high-risk patients with schizophrenia from areas of high deprivation, higher staffed wards with a greater proportion of male nurses who judge containment measures overall to be more safe and acceptable.

Factor 3 links more intensive security policies including door locking with low physical environment quality, the admission of more young, male, formally-detained ethnic minority patients from areas of high social fragmentation and poor housing, higher staffing levels and a contradictory mix of staff functioning indicators. No conflict behaviours are associated with this factor.

Factor 4 links more intensive security polices of a slightly different type to less rule breaking and demanding of Pro Re Nata medication, the admission of more informal, lower risk patients from high deprivation areas to wards with fewer staff with good team working but a less positive attitude to personality disordered patients.

Factor 5 links higher levels of special observation and lower self-harm rates, more white admissions at lower risk from housing deprived areas to wards with a lower proportion of qualified nurses who are less well organised, less well lead and have more negative attitudes to personality disorder.

The factor structure conveys some similar messages to the cluster analysis. Security polices are not associated with the use of other more specific forms of containment, and conflict items group together, with the exception of self-harm. All factors except Factor 2 varied significantly by Trust, suggesting that geographical and organisational factors were, as in the cluster analysis, highly important. Factors 1, 3 and 5 also significantly varied by research centre or region of the country covered.

Table 23. Relationship between factors and other variables.

Factor	Containment	Conflict	Ward operation	Physical environment	Patients	Staff demography	Staff psychology
1	High use of containment measures: PRN, IM medications, show of force, manual restraint and time out	High conflict, excluding alcohol use, drug use and self-harm	Less likely to have a crisis intervention team or assertive outreach team, less patient activities	Less likely to have a seclusion room	More patients with schizophrenia, sectioned and admitted for risk of harm to others, Asian ethnicity patients; areas of higher deprivation and crime	More total staff on duty, more bank, agency and unqualified staff on duty; younger staff group	Lower APDQ security, higher emotional exhaustion and depersonalisation, lower order and organisation, lower programme clarity
2	Higher seclusion use	High alcohol and drug use, high actual absconding (officially reported and missing without permission)	Higher on male-only wards, lower on female-only wards	More likely to have a seclusion room on the ward, lower physical environmental quality	More patients male, schizophrenia, admitted for risk of harm to others; fewer white patients; areas of higher deprivation	More locum consultant psychiatrists, more total staff on duty; African ethnicity and male staff group	Greater ACMQ acceptability and safety for patients
3	More intensive security policies: bans, searches, restrictions, door security and door locking		Higher on female-only wards, lower on both gender wards, more internal rotation, fewer permanent night staff, more likely to hold community meetings, more likely to have a crisis intervention team	Fewer beds, lower physical environment quality	More patients male, young, Irish, Caribbean and African ethnicities; fewer white ethnicity patients, areas of higher social fragmentation, skills deprivation; barriers, wider barriers, geographical barriers to housing, living environment, indoor and outdoor deprivation	More total staff and qualified staff on duty; fewer white and more African and Caribbean staff group	Greater ACMQ safety for patients, less transformational leadership, greater team vision
4	More intensive security policies: searches, drug and alcohol sensitivity, alarms but less door locking	Less rule-breaking and more demanding PRN medication	Less internal rotation, less likely to hold community meetings, morel likely to have a home treatment team	More beds, fewer single rooms	Fewer sectioned patients, fewer admitted for harm to others, fewer 'other' ethnicity patients; areas of higher deprivation, especially income and employment	Fewer doctors and nursing staff in post, fewer staff on duty, less bank, agency and unqualified staff on duty	Lower APDQ total and acceptance, greater participant safety and support for innovation
5	More intermittent and constant special observation	Lower self-harm			Fewer patients admitted for risk of harm to others, fewer Caribbean and African ethnicity patients; more white ethnicity patients; areas of high skills deprivation, barriers and wider barriers to	Fewer clinical psychologists and qualified nurses, more unqualified nurses on duty; more white, fewer African, Asian and 'other' ethnicity staff group	Lower APDQ total, purpose and enthusiasm, less order and organisation and programme clarity, less vision and task orientation

4 A survey of staff and patient views on containment measures

4.1 Aim

To systematically describe patient and staff views of staff containment measures, including special observation, incorporating judgements of efficacy, acceptability, dignity, safety for patients and safety for staff.

4.2 Background

It is widely acknowledged that effective mental health care sometimes includes the deployment, by staff, of coercive measures which are intended to contain dangerous or severely disruptive behaviour by a patient. In the UK, these measures include enhanced observation (intermittent or constant), physical 'hands-on' restraint, supplementary medication (orally, intramuscularly or intravenously with or without explicit coercion) and various techniques involving relocation of the service user to a safer environment (seclusion, time out or transfer to a psychiatric intensive care unit). Such measures are politically and ethically controversial and carry some element of risk for both patients and staff in terms of the potential for physical and psychological harm (Hopton, 1995; Lind *et al*, 2004). Two other techniques, mechanical restraint and net beds, are used widely in continental Europe, and elsewhere with comparable healthcare systems, but anecdotal evidence suggests that they cause widespread professional revulsion in the UK. Nevertheless, the UK consensus that mechanical restraint is unacceptable has recently been challenged following the death of David Bennett, which reminded professionals again of the potential lethality of controlling violence through a mixture of physical restraint and sedation.

The small amount of research identified in the systematic review underpinning the relevant national English clinical practice guidelines (NICE, 2005a) indicated that patients felt much resentment at the inappropriate use of containment measures and considered it degrading for somebody to be subjected to them. Those surveyed did, however, recognise its use was sometimes justified and, when unavoidable, expressed a preference for it to be implemented by staff known to the patient. A recent study not included in the NICE review (Lessing and Beech, 2004) also indicated that patient satisfaction with the mental health care experience was higher on wards where restraint use was higher, indicating that a sense of safety and protection for the majority was gained when violent patients were effectively controlled. With regard to staff attitudes, existing evidence supports the expectation that staff also believe in the occasional necessity of containment measures and that participating in deploying them can be traumatic for the staff as well as the patient (NICE, 2005a; Bonner, Lowe *et al* 2002).

This component of the City 128 study was intended to establish a national benchmark of stakeholder views on this vital topic by systematically examining the nature of attitudes amongst patients and staff with regard to the acceptability of different containment measures. This systematic approach involved drawing on the large ward and individual samples obtained for the main study and administering a structured instrument with some established psychometric properties (Bowers, Simpson, Alexander *et al* 2004).

4.3 Method

4.3.1 Setting and sample

Staff and patient respondents were drawn from the 136 acute wards participating in the overall study. The intention was to recruit ten patients and all staff from each ward. Potential patients on each ward were identified by random sampling but, once identified, only those judged by staff as able to grant informed consent and participate were approached. Most patients were interviewed by a research assistant to aid completion of the ACMQ instrument (see below). All staff on each ward were sent a copy of the ACMQ instrument and those who completed it, returned it anonymously through an internal mailbox. The final sample consisted of 1226 staff and 1361 patients (see Table 24). Of staff, 95%respondents were nurses (68%) or health care assistants (27%) with the rest being from other occupations: OT, psychiatrist, psychologist, social worker.

Table 24. Participant characteristics

			Patients		Staff	
			N	%	N	%
Female			648	48	782	67
Age	Under 20		57	4	13	1
	20-29		268	20	298	25
	30-39		346	26	361	30
	40-49		368	27	332	28
	50-59		198	15	167	14
	Over 60		113	8	25	2
Region	North		470	35	411	34
	Central		438	32	469	38
	South		453	33	346	28
Total			**1361**	100	**1226**	100

4.3.2 Measure

The Attitudes to Containment Measures Questionnaire (ACMQ) lists 11 containment measures used widely either in the UK: PRN medication, compulsory IM medication; physical restraint; intermittent observation; constant observation; time out; PICU transfer; locked door seclusion; open area seclusion, or elsewhere in Europe: net bed; mechanical restraint. Each listed containment measure is accompanied by a short description and a visual illustration and six dimensions of approval are assessed: effectiveness, acceptability, respectfulness, safety for patients, safety for staff, willingness to undergo (patients) or use (staff). The respondent is asked to indicate their degree of approval on a five-point Likert scale (strongly agree =5, to strongly disagree=1) and then to indicate (yes/no) whether they have been involved in implementing the measure (staff) or subjected to it (patients). Responses were summed across approval ratings for each containment measure and a high score indicates approval as opposed to disapproval. Comparisons between groups were tested using multiple independent samples t-tests or ANOVA (with post-hoc tests), chi square or spearman correlations. Definitions and pictures provided to subjects with the ACMQ are depicted in Table 25.

Table 25. ACMQ definitions and pictures

PRN medication: Medication given at the nurses' discretion in addition to regular doses, by any route, and accepted voluntarily.		**Psychiatric intensive care**: Transfer to a specialist locked ward for disturbed patients.	
Physical restraint: Physically holding the patient, preventing movement.		**Mechanical restraint**: The use of restraining straps, belts or other equipment to restrict movement.	
Intermittent observation: An increased level of observation, of greater intensity than that which any patient generally receives, coupled with allocation of responsibility to an individual nurse or other worker. Periodic checks at intervals.		**Constant observation**: An increased level of observation, of greater intensity than that which any patient generally receives, coupled with allocation of responsibility to an individual nurse or other worker. Constant: within eyesight or arms reach of the observing worker at all times.	
Seclusion: Isolated in a locked room.		**Net bed** Patient placed in a net bed enclosed by locked nets, which he or she is unable to leave.	
Time out: Patient asked to stay in room or area for period of time, without the door being locked.		**Open area seclusion**: Isolated in a locked area, accompanied by nurses.	
Compulsory intramuscular sedation: Intramuscular injection of sedating drugs given without consent.			

4.4 Results

For those containment methods in use in the UK, patients were asked whether they had undergone them and staff were asked whether they had used them. A summary of these items is presented in Table 26. As might be expected, staff have a greater experience of, and exposure to, containment methods, as they have a constant presence in the acute ward, whereas individual patients pass through for relatively short time spans.

Table 26. Patient and Staff Experience

	% patients	% staff
PICU	27	70
PRN medication	64	72
Intermittent observation	71	96
Constant observation	45	97
Time out	37	68
IM medication	39	68
Physical restraint	43	89
Seclusion	28	46

Tables 27 and 28 present the mean (sd) scores for patients and staff on each of the six dimensions of approval with regard to the eleven containment measures. Staff approved of containment measures overall more highly on each dimension of approval though the dimension 'safe for staff' was endorsed at roughly equal levels. Most aspects of net beds were strongly disapproved of by patients and staff and it is noteworthy that there was a relatively strong endorsement of the item 'I would not be prepared to undergo mechanical restraint' by the patient group.

Figure 7 plots the sum total approval score for each group for comparison purposes. It can be seen that the patient group disapproved most strongly of net beds, mechanical restraint and IM medication and the staff group disapproved most strongly of net beds, mechanical restraint and open area seclusion. The patient group approved most strongly of intermittent observation, time out and PRN medication; and the staff group approved most strongly of PICU transfer, PRN medication and observation. A score of 18 in Figure 7 was adopted as a cut off to distinguish between 'absolute' approval and disapproval as this value lay at the midpoint of the modified Likert scale. Using this cut off, both patients and staff disapproved of net beds and mechanical restraint and patients in addition disapproved of IM medication.

Figure 7. Overall approval of containment methods by patients and staff

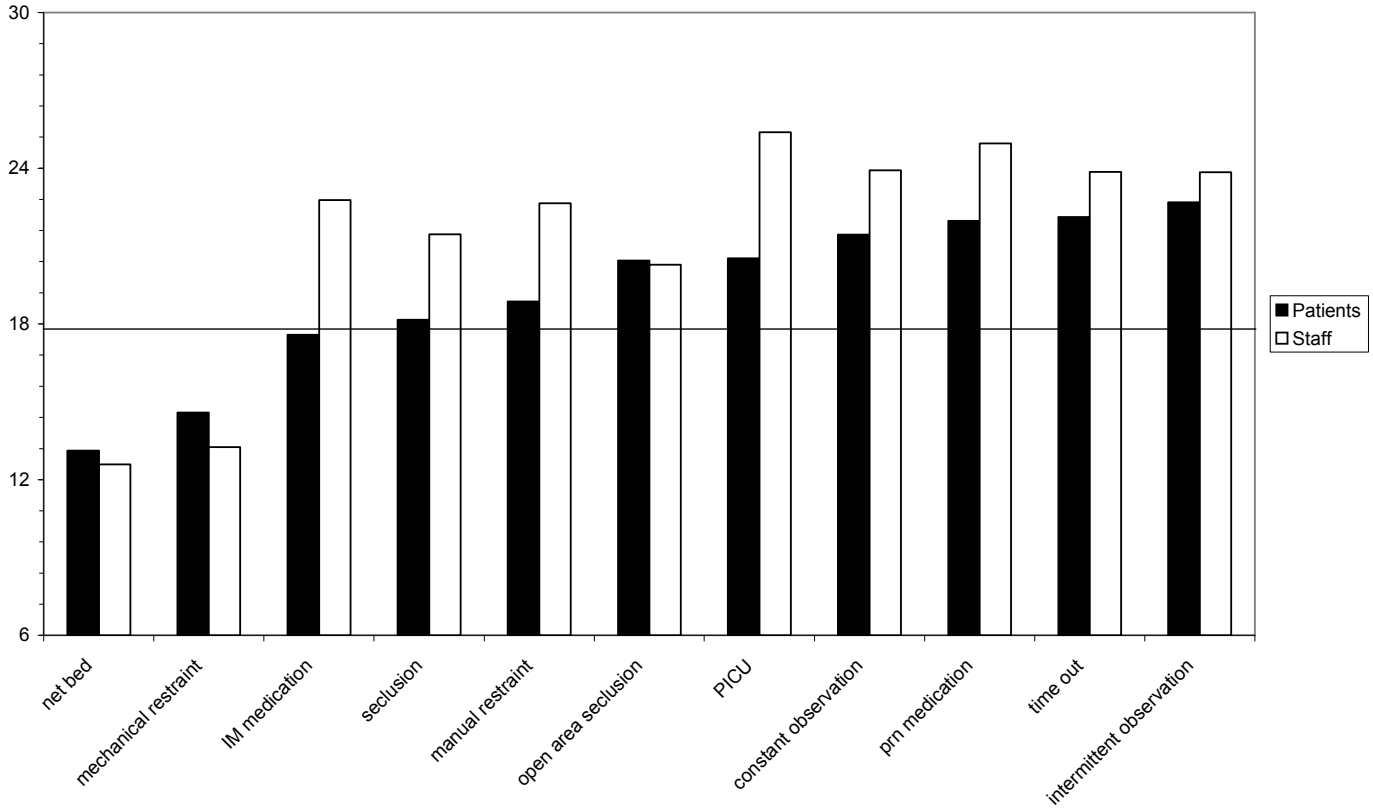


Table 27. Patient attitudes to containment scores: means and standard deviations

Patients	Efficacy		Acceptability		Dignified		Safe for staff		Safe for patients		Prepared to undergo		Sum total approved	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
PRN	3.67	0.98	3.73	0.94	3.59	1.01	3.73	0.90	3.62	0.94	3.63	1.04	21.97	4.67
Physical restraint	3.42	1.13	3.34	1.13	2.91	1.17	3.19	1.08	3.12	1.12	2.89	1.26	18.87	5.60
Intermittent observation	3.78	0.96	3.86	0.90	3.60	1.05	3.89	0.82	3.88	0.88	3.69	1.03	22.69	4.68
Seclusion	3.07	1.19	2.99	1.21	2.78	1.20	3.57	1.01	3.13	1.18	2.62	1.27	18.16	5.78
Time out	3.63	0.99	3.76	0.89	3.67	0.97	3.77	0.83	3.69	0.90	3.61	1.02	22.13	4.67
IM medication	3.25	1.23	2.91	1.25	2.59	1.21	3.26	1.13	2.99	1.18	2.59	1.29	17.59	6.07
PICU	3.55	1.03	3.53	1.04	3.31	1.08	3.64	0.93	3.50	1.01	3.00	1.24	20.53	5.33
Mechanical restraint	2.59	1.27	2.28	1.19	2.11	1.11	3.03	1.23	2.57	1.21	1.99	1.12	14.59	5.90
Constant observation	3.71	1.02	3.66	1.03	3.32	1.15	3.66	0.95	3.73	0.95	3.36	1.19	21.44	5.33
Net bed	2.27	1.24	1.97	1.10	1.91	1.08	2.86	1.32	2.37	1.24	1.73	1.01	13.12	5.77
Open area seclusion	3.50	1.03	3.48	1.05	3.34	1.09	3.42	1.00	3.48	1.01	3.21	1.19	20.44	5.53
Summed total score	36.43	7.28	35.52	7.34	33.13	7.85	37.98	6.74	36.08	7.35	32.35	8.42		

Table 28. Staff attitudes to containment scores: means and standard deviations

Staff														
	Efficacy		Acceptability		Dignified		Safe for staff		Safe for patients		Prepared to undergo		Sum total approved	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
PRN	4.27	0.65	4.24	0.59	4.14	0.69	4.01	0.75	4.03	0.66	4.20	0.77	24.95	3.27
Physical restraint	4.04	0.75	3.95	0.75	3.45	1.03	3.45	1.00	3.61	0.89	4.07	0.77	22.64	4.13
Intermittent observation	3.93	0.90	4.08	0.73	3.80	0.88	3.82	0.88	4.00	0.79	4.16	0.71	23.84	4.10
Seclusion	3.65	1.03	3.54	1.02	3.28	1.08	3.69	0.97	3.58	0.99	3.62	1.07	21.45	5.48
Time out	3.96	0.79	4.05	0.70	3.98	0.76	3.85	0.81	3.94	0.75	4.05	0.73	23.86	4.02
IM medication	4.13	0.77	3.91	0.82	3.32	1.01	3.72	0.84	3.69	0.81	3.96	0.85	22.78	4.19
PICU	4.35	0.66	4.32	0.63	4.09	0.80	4.10	0.80	4.17	0.74	4.29	0.69	25.39	3.75
Mechanical restraint	2.42	1.17	2.10	1.02	2.02	1.02	2.47	1.10	2.25	1.04	2.05	1.09	13.26	5.78
Constant observation	4.22	0.69	4.20	0.66	3.51	1.03	3.61	0.97	4.08	0.71	4.22	0.64	23.91	3.71
Net bed	2.27	1.06	1.98	0.96	1.93	0.97	2.36	1.07	2.20	1.01	1.90	0.98	12.58	5.42
Open area seclusion	3.48	0.95	3.48	0.93	3.42	0.95	3.12	1.02	3.43	0.94	3.36	1.03	20.28	5.39
Summed total score	41.11	5.21	40.22	5.16	37.36	6.25	38.44	5.90	39.38	5.23	40.34	5.43		

4.4.1 Variations by gender

Patients: Approval ratings by male patients were consistently significantly higher for manual restraint ($t = 2.26$, $df = 1339$, $p = 0.024$), seclusion ($t = 2.42$, $df = 1330$, $p = 0.016$), mechanical restraint ($t = 3.16$, $df = 1318$, $p = 0.002$) and net beds ($t = 3.79$, $df = 1308$, $p < 0.001$) compared to female patients. Female patients were more likely to have had experience of being subject to intermittent observation ($\chi^2 = 10.81$, $df = 1$, $p = 0.001$), and constant observation ($\chi^2 = 4.81$, $df = 1$, $p = 0.028$), whereas male patients were more likely to have had experience of being subject to seclusion ($\chi^2 = 5.48$, $df = 1$, $p = 0.019$), and psychiatric intensive care (χ^2 21.21, $df = 1$, $p < 0.001$).

Staff: There were also multiple differences within the staff group, with male staff consistently approving more highly of every containment method (PRN medication, $t = 2.14$, $df = 1153$, $p = 0.03$; manual restraint, $t = 3.01$, $df = 1159$, $p = 0.003$; intermittent observation, $t = 2.5$, $df = 1157$, $p = 0.013$; seclusion, $t = 3.97$, $df = 10791$, $p < 0.001$; mechanical restraint, $t = 4.14$, $df = 1080$, $p < 0.001$; constant observation, $t = 2.08$, $df = 1150$, $p = 0.038$; net beds, $t = 2.6$, $df = 1033$, $p = 0.009$; open area seclusion, $t = 3.05$, $df = 1077$, $p = 0.002$) except time out, psychiatric intensive care and IM medication. Male staff were more likely to have had experience of using seclusion ($\chi^2 = 9.17$, $df = 1$, $p = 0.002$).

4.4.2 Variations by age

Patients: Most items showed a positive relationship to age, with older patients expressing greater approval of many containment methods (manual restraint $r = 0.123$, $n = 1349$, $p < 0.001$; seclusion $r = 0.083$, $n = 1340$, $p = 0.002$; IM medication, $r = 0.127$, $n = 1338$, $p = 0.077$; PICU, $r = 0.072$, $n = 1333$, $p = 0.008$; constant observation, $r = 0.105$, $n = 1329$, $p < 0.001$). Younger patients were more likely to have been subject to physical restraint ($\chi^2 = 11.67$, $df = 5$, $p = 0.04$), time out ($\chi^2 = 20.44$, $df = 5$, $p = 0.001$), and constant observation ($\chi^2 = 11.67$, $df = 5$, $p = 0.04$).

Staff: Younger staff were significantly more approving of mechanical restraint ($r = -0.175$, $n = 1102$, $p < 0.001$) and net beds ($r = -0.117$, $n = 1057$, $p < 0.001$). There were relationships between staff age and their experience of having used some containment measures (PRN medication, $\chi^2 = 18.8$, $df = 5$, $p = 0.002$; seclusion, $\chi^2 = 33.11$, $df = 5$, $p < 0.001$; IM medication, $\chi^2 = 16.09$, $df = 5$, $p = 0.007$), but these relationships were not straightforward or in each case the same, with for some measures younger and older staff having greater experience, and for other measures middle aged staff (30–49 years of age) having greater experience. For staff, therefore, there is probably an interaction between age, duration of time working in psychiatry, and cohort affecting approval of containment methods.

4.4.3 Variations by NHS Trust and region

Patients: There were significant differences in overall approval scores for every containment method except time out and open area seclusion between patients in different parts of England (e.g. PRN medication, $F_{2,1353} = 25.1$, $p < 0.001$; manual restraint $F_{2,1357} = 31.45$, $p < 0.001$), with scores generally being higher in the Northern region, lower in the Central and lowest in the Southern regions. These results were mirrored when an analysis was undertaken by Trust. Every score except for time out and open area seclusion approval (e.g. PRN medication, $F_{25,1330} = 3.6$, $p < 0.001$; manual restraint, $F_{25,1334} = 3.89$, $p < 0.001$) showed significant differences by Trust, with those differences showing a North–South axis in the direction of greater approval further North.

Staff: As with patients, there were significant differences in overall approval scores by region, however the pattern of these results were different. In most cases, it was staff from the Southern region that approved most highly of containment methods, followed by Northern staff, with Central staff being the least approving (intermittent observation, $F_{2,1205} = 5.58$, $p = 0.004$; seclusion, $F_{2,1123} = 42.15$, $p < 0.001$; time out, $F_{2,1159} = 3.2$, $p = 0.041$; psychiatric intensive care, $F_{2,1172} = 9.49$, $p < 0.001$; constant observation, $F_{2,1196} = 6.16$, $p = 0.002$; open area seclusion, $F_{2,1121} = 5.59$, $p = 0.004$). The only difference in order was for manual restraint, where Northern staff showed the highest levels of approval ($F_{2,1207} = 4.24$, $p = 0.015$). There was no significant regional effect for PRN medication, net bed or mechanical restraint. Again, in an analysis by Trust these results were mirrored, with all measures except time out and net bed approval showing significant differences by Trust (e.g. PRN medication, $F_{25,1177} = 2.26$, $p < 0.001$; manual restraint, $F_{25,1184} = 2.18$, $p = 0.001$) . However the picture emerging was more complex, with no straightforward North–South axis visible.

4.4.4 Variations according to personal experience

Patients: With regard to overall approval score, patients who had been subjected to PRN medication ($t = 6.29$, $df = 1342$, $p < 0.001$) and constant observation ($t = 2.78$, $df = 1327$, $p = 0.005$) approved of these measures more strongly than other non-subjected patients, and those who had been subjected to manual restraint ($t = 7.44$, $df = 1344$, $p < 0.001$) and compulsory IM medication ($t = 7.08$, $df = 1332$, $p < 0.001$) disapproved of these measures more strongly than other non-subjected patients.

Staff: There was a universal tendency for staff who had been engaged in using a specific coercion measure approving of it more strongly than those staff who had not (e.g. PRN medication $t = 6.63$, $df = 1139$, $p < 0.001$; manual restraint $t = 6.13$, $df = 1161$, $p < 0.001$). Sample sizes for physical restraint and intermittent observation were highly unbalanced as only 10–15% of staff had never been involved in implementing these procedures.

4.4.5 Summary of findings related to special observation

Intermittent observation was the most approved containment measure by patients, whilst constant observation was their fourth most approved. For staff, intermittent and constant observation were the third and fifth most approved measures. Female patients were more likely to have been subject to both intermittent and constant observation, and younger patients were more likely to have experienced constant observation. Patients who had been subject to constant observation were more likely to approve of it, while for staff, experience of using both intermittent and constant observation was associated with greater approval. Levels of approval of intermittent and constant observation for both groups, staff and patients, varied significantly by Trust.

5 Estimating the costs of conflict and containment on adult acute inpatient psychiatric wards

5.1 Background

There are only a few published studies of incidents and events on psychiatric inpatient wards, most of which are from the United States and none of which is less than ten years old. Lanza and Milner (1989) reported a study in which victim costs, staff costs, police costs, as well as other personnel costs, were recorded as measures of patient assault, and estimated that one year staff costs derived from staff time spent dealing with assaults amounted to $14,667. Hunter and Carmel (1992) found, using a retrospective approach in one state hospital, that the total cost of staff injuries caused by inpatient violence amounted to $766,290, with an average cost per injury of $5719.

LeBel and Goldstein (2005) examined the economic cost of using restraint on an adolescent inpatient service. The aggregate use of restraint was reduced from 3991 episodes to 373 episodes as a result of a restraint reduction initiative, with a reduction in costs from $1,446,740 to $117,036.

Heyman and Lombardo (1995) and Moore *et al* (1995) estimated the costs of special observation at $120,000 and $581,000 by per year per hospital respectively. The latter study suggests that special observation accounts for up to 20% of total nursing budgets.

Time and motion studies have also been conducted to try and ascertain what activities psychiatric care staff engage in, which are potentially a useful starting point for determining staff time and ultimately resources used. Ryrie *et al* (1998) measured the amount of nursing time spent in patient contact and non-patient contact activities. This study ascertained that 50% of staff time was available for direct patient contact. Fourie *et al* (2005) used a qualitative descriptive exploratory approach to observe nursing practice on three selected wards. Sullivan *et al* (2003) investigated factors associated with time allocation for all staff using a brief self-report survey. The time taken for specific interventions has been studied using work sampling and examination of practice patterns or nursing activities (Colombo *et al,* 2005; Duffield *et al,* 2003; Gagnon *et al,* 1996; Hoffman *et al*, 2003; Kiekkas *et al*, 2005; McNiven *et al*, 1992; Pelletier *et al*, 2003). However, none of these relate specifically to psychiatry or to inpatient psychiatric wards.

In summary, some published mental health-related studies give examples of individual components of conflict and containment such as violence, special observation and restraint. However, much of the literature is general and not necessarily relevant to UK adult psychiatric acute inpatient care. Although there are some UK studies, for example the paper by Beecham *et al* (2003) which estimated the unit costs of child and adolescent psychiatric inpatient units, none has costings relevant to our research issues.

5.2 Aim

The aim of this study was to estimate the costs of different types of conflict and containment in the UK. It used data on the number of events from 136 adult acute inpatient psychiatric wards in the UK and unit costs from a sample of 15 wards, using a novel interview method.

5.3 Methods

The intermittent nature of the events being recorded meant that it would not be possible to obtain by observation or recording precise details of actual staff time and other resources used in them. A new method of estimating costs was therefore devised, based on interviews of key staff who used their experience and knowledge to describe the resources that are typically utilised in terms of the number, skill mix and time of staff involved and medication and administration used in dealing with incidents arising from conflict and containment.

5.3.1 Development of an interview schedule

An interview schedule was developed by experienced research staff in conjunction with a health economist. This was piloted on a number of senior nursing personnel to ascertain the length of time it required to complete, the suitability of the questions and the ease with which respondents could answer them. These pilot interviews were recorded. At the end of the interviews the respondents were asked how they found the interview and what would have made it easier or how it could have been improved. Finally the interviews were listened to again and where necessary, the schedule was changed and refined.

5.3.2 Obtaining resource use data

Interviews for the main study were carried out by researchers familiar with the interview schedule in fifteen wards randomly selected from the 136 participating in the City 128 study. As experienced and knowledgeable individuals, ward managers were approached to complete the interviews.

At the beginning of the interviews it was explained to the interviewees that the aim of the research was to obtain information about staff time resources used; especially in dealing with patient conflict behaviours, e.g. self-harm, aggression, and staff containment measures, e.g. special observation, PRN medication. They were first asked about the types of incidents they typically encountered and to describe typical clinical incidents and staff containment strategies. Whilst describing these, they were prompted to draw upon their experience of acute inpatient psychiatry so that examples could be translated into costs. It was explained that we were specifically interested in knowing what staff were typically involved and how much time is taken up. All of this information was recorded in a specially devised form, known as the City 128 Economic Interview Schedule for Conflict and Containment Cost, which is contained in an appendix to the main report.

Because events on acute wards are often varied, and it is therefore not always easy to say what is the norm or typical, interviewees were encouraged to give a range, especially in relation to staff time, relating to typical and more rare cases. They were then asked to estimate the proportion of all events that involved longer and shorter incidents, in terms of a percentage. The pilot interviews demonstrated that interviewees automatically thought about actual events, and in particular usually recent events. We therefore asked respondents not to fix on a specific incident. We clarified whether or not incidents were typical and representative and where possible asked interviewees to think about other examples.

They were asked to be as precise as possible in terms of the numbers of staff used, the skill mix or grades involved, and the approximate length of time for each conflict and containment variable or incident to be dealt with. Prompts were given for documentation and reporting time, for example in the case of form filling time and notifying the police for officially reporting missing patients. Seclusion time and costs were sought by shift basis. These questions naturally followed on from the incidents, events and staff tasks we were asking the staff teams to record at the end of each shift on the reports (PCC-SRs) that were being collected for the City 128 study.

5.3.3 Converting resource use data into cost data

The resulting data on grades of staff and their time involved in the conflict and containment incidents were converted to costs using national unit cost data (Curtis and Netten, 2005) which had been checked with the Finance Department at East London and City Mental Health Trust. These are presented in Table 29. The total costs per incident were then multiplied by the number of incidents obtained from the 136 wards in the wider City 128 study, and adjusted to give an annualized figure per ward and for all wards. A national estimated figure was calculated by multiplying these costs by the number of acute psychiatric wards nationally, which in England is approximately 551 (Garcia *et al,* 2004; Ryan *et al,* 2002).

Sensitivity analyses were conducted around unit costs and numbers of incidents as well as different methods of dealing with missing data.

Table 29. Unit costs for various staff deployed to deal with conflict and containment.

Staff grade or position	Unit cost (hour)
A	£ 15.40
B	£ 16.80
C	£ 19.60
D	£ 23.00
E	£ 24.10
F	£ 26.70
G	£ 30.20
H	£ 32.80
Nurse (Q)*	£ 23.55
Nurse (N)**	£ 21.30
Doctor (SHO)	£ 35.40
SpR	£ 44.00
Consultant	£ 114.00
OT	£ 42.00
SW	£ 106.00
GP	£ 90.00

* average of grade D and E nurses where qualified nurse was given as example but grade not specified

** average of all nursing grades qualified or unqualified based on most likely range of nurses used where no grade specified

5.4 Results

5.4.1 Costs

Table 30 shows the estimated mean annual costs per ward of different conflict and containment incidents in the sample, and the total cost for all inpatient psychiatric wards in England. The estimated mean annual cost for conflict in the sample is £145,177, and for containment £212,316. The total estimated annual costs in England for all conflict is £72.5 million and for containment is £106 million. The most expensive conflict behaviour to manage was verbal abuse with a mean cost per ward of £21.2k and a total of £10.5 million nationally. Of special interest in this study is self-harm, which was had a mean cost of £8.2k per ward in the study sample and costs £4 million in England. Intermittent and special observation cost £45 million and £35 million respectively.

Using the costs provided in Table 30, and nursing establishment figures provided by ward managers as part of the project, it is possible to calculate the annual nurse staffing costs for wards. Although some data on number of doctors and occupational therapists is also available, its application is more ambiguous. For example, a ward may have a whole time consultant psychiatrist, but the proportion of time that person spends on inpatient ward work (and what constitutes the boundary for that) is not simple to determine. Using nursing figures alone, the mean annual nursing cost per ward is £679,258. In conjunction with Table 31, this figure suggests that approximately half of all nursing resources are expended in managing conflict and deploying containment.

Table 30. Costs of conflict and containment events

	Cost per event	Mean no. events per ward per day	Cost per ward per day	Cost per ward per year	Cost nationally (based on 500 wards
Verbal abuse	£ 23.11	2.51	£ 58.05	£ 21,187	£ 10,593,543
Aggression to objects	£ 38.36	0.48	£ 18.47	£ 6,742	£ 3,371,112
Physical assault	£ 78.75	0.34	£ 27.00	£ 9,856	£ 4,928,161
Smoking in ns area	£ 5.59	2.59	£ 14.49	£ 5,290	£ 2,645,132
Refusing to eat	£ 25.50	0.91	£ 23.09	£ 8,428	£ 4,213,987
Refusing to drink	£ 24.19	0.40	£ 9.79	£ 3,575	£ 1,787,538
Refusing to wash	£ 35.02	1.37	£ 48.07	£ 17,545	£ 8,772,253
Refusing to get up	£ 14.66	0.77	£ 11.23	£ 4,101	£ 2,050,264
Refusing to go to bed	£ 19.73	0.49	£ 9.64	£ 3,519	£ 1,759,525
Refusing to see workers	£ 23.80	0.18	£ 4.16	£ 1,520	£ 760,002
Alcohol use	£ 28.78	0.37	£ 10.51	£ 3,835	£ 1,917,324
Drug use	£ 43.67	0.34	£ 14.68	£ 5,359	£ 2,679,449
Attempts to abscond	£ 58.31	0.67	£ 38.81	£ 14,167	£ 7,083,614
Absconding (missing)	£ 53.75	0.32	£ 17.42	£ 6,358	£ 3,178,933
Absconding (official report)	£ 68.94	0.19	£ 13.04	£ 4,761	£ 2,380,365
Refused regular meds	£ 23.37	0.93	£ 21.69	£ 7,918	£ 3,959,039
Refused prn meds	£ 23.37	0.32	£ 7.40	£ 2,702	£ 1,350,962
Demand prn meds	£ 24.09	1.15	£ 27.78	£ 10,139	£ 5,069,329
Self harm	£ 62.52	0.36	£ 22.40	£ 8,176	£ 4,088,161
Given prn	£ 18.85	2.30	£ 43.40	£ 15,843	£ 7,921,325
Given IM	£ 129.38	0.15	£ 19.57	£ 7,145	£ 3,572,399
Sent to PICU or ICA	£ 139.84	0.04	£ 5.55	£ 2,026	£ 1,013,207
Seclusion	£ 200.07	0.05	£ 10.92	£ 3,987	£ 1,993,637
Intermittent observation	£ 45.89	5.43	£ 249.36	£ 91,016	£ 45,507,802
Constant special observation	£ 138.52	1.41	£ 195.12	£ 71,218	£ 35,608,935
Show of force	£ 70.16	0.29	£ 20.46	£ 7,469	£ 3,734,743
Manual restraint	£ 145.27	0.21	£ 30.73	£ 11,215	£ 5,607,432
Time out	£ 20.43	0.32	£ 6.57	£ 2,397	£ 1,198,516
Cost of all conflict			£ 397.75	£ 145,177	£ 72,588,694
Cost of all containment			£ 581.69	£ 212,316	£ 106,157,997

5.4.2 Sensitivity analysis

In reporting costs, it is important to take account of the fact that like all such data they are measured only to a degree of precision, and they are best reported with both a central and a range estimate. Where the data are based on a sample, it is possible to define a confidence interval or credible region. However, because of the nature of some of the data, such as the unit costs of staff time, this is not appropriate and sensitivity analysis should be used. Table 31 demonstrates the costs that result from increasing and decreasing the unit staff costs and number of events by 10% from the central estimates. For example, the central estimate of £72.6 million for all conflict decreases to £58.8 million and increases to £87.8.

Table 31. Sensitivity analysis, costs nationally based on 500 wards

	10% decrease in staff costs and incidents	Initial estimate	10% increase in staff costs and incidents
Verbal abuse	£ 8,580,769	£ 10,593,543	£ 12,818,186
Aggression to objects	£ 2,730,600	£ 3,371,112	£ 4,079,045
Physical assault	£ 3,991,810	£ 4,928,161	£ 5,963,075
Smoking in ns area	£ 2,142,557	£ 2,645,132	£ 3,200,610
Refusing to eat	£ 3,413,330	£ 4,213,987	£ 5,098,925
Refusing to drink	£ 1,447,906	£ 1,787,538	£ 2,162,921
Refusing to wash	£ 7,105,525	£ 8,772,253	£ 10,614,426
Refusing to get up	£ 1,660,714	£ 2,050,264	£ 2,480,820
Refusing to go to bed	£ 1,425,215	£ 1,759,525	£ 2,129,025
Refusing to see workers	£ 615,601	£ 760,002	£ 919,602
Alcohol use	£ 1,553,032	£ 1,917,324	£ 2,319,962
Drug use	£ 2,170,354	£ 2,679,449	£ 3,242,133
Attempts to abscond	£ 5,737,727	£ 7,083,614	£ 8,571,173
Absconding (missing)	£ 2,574,936	£ 3,178,933	£ 3,846,510
Absconding (official report)	£ 1,928,096	£ 2,380,365	£ 2,880,242
Refused regular meds	£ 3,206,822	£ 3,959,039	£ 4,790,438
Refused prn meds	£ 1,094,279	£ 1,350,962	£ 1,634,664
Demand prn meds	£ 4,106,157	£ 5,069,329	£ 6,133,888
Self harm	£ 3,311,411	£ 4,088,161	£ 4,946,675
Given prn	£ 6,416,274	£ 7,921,325	£ 9,584,804
Given IM	£ 2,893,643	£ 3,572,399	£ 4,322,603
Sent to PICU or ICA	£ 820,698	£ 1,013,207	£ 1,225,981
Seclusion	£ 1,614,846	£ 1,993,637	£ 2,412,301
Intermittent observation	£ 36,861,320	£ 45,507,802	£ 55,064,440
Constant special observation	£ 28,843,238	£ 35,608,935	£ 43,086,812
Show of force	£ 3,025,141	£ 3,734,743	£ 4,519,038
Manual restraint	£ 4,542,020	£ 5,607,432	£ 6,784,993
Time out	£ 970,798	£ 1,198,516	£ 1,450,204
Cost of all conflict	£ 58,796,842	£ 72,588,694	£ 87,832,320
Cost of all containment	£ 85,987,977	£ 106,157,997	£ 128,451,176

There were also missing data, and Table 32 shows the sensitivity of the results to different ways of accounting for them, including complete case analysis, mean imputation and accepting missing data as a proxy for non-events or true zero costs.

Table 32. Complete case analysis, mean imputation and true zeros where data missing, cost nationally (based on 500 wards)

	Complete case analysis	Mean imputation	True zeros assumed
Verbal abuse	£ 10,593,543	£ 10,593,543	£ 10,593,543
Aggression to objects	£ 3,371,112	£ 3,371,112	£ 3,325,381
Physical assault	£ 4,928,161	£ 4,928,161	£ 4,928,161
Smoking in ns area	£ 2,645,132	£ 2,640,914	£ 2,581,795
Refusing to eat	£ 4,213,987	£ 3,999,691	£ 3,189,876
Refusing to drink	£ 1,787,538	£ 1,616,823	£ 1,206,750
Refusing to wash	£ 8,772,253	£ 8,739,335	£ 8,038,432
Refusing to get up	£ 2,050,264	£ 1,984,451	£ 1,629,573
Refusing to go to bed	£ 1,759,525	£ 1,744,430	£ 1,560,414
Refusing to see workers	£ 760,002	£ 756,512	£ 719,241
Alcohol use	£ 1,917,324	£ 1,914,428	£ 1,844,182
Drug use	£ 2,679,449	£ 2,679,449	£ 2,679,449
Attempts to abscond	£ 7,083,614	£ 6,964,040	£ 6,249,013
Absconding (missing)	£ 3,178,933	£ 2,697,633	£ 2,276,587
Absconding (official report)	£ 2,380,365	£ 2,289,060	£ 2,252,273
Refused regular meds	£ 3,959,039	£ 3,941,441	£ 3,620,749
Refused prn meds	£ 1,350,962	£ 1,344,957	£ 1,235,526
Demand prn meds	£ 5,069,329	£ 5,062,899	£ 4,904,694
Self harm	£ 4,088,161	£ 4,088,161	£ 4,088,161
Given prn	£ 7,921,325	£ 7,017,285	£ 5,882,380
Given IM	£ 3,572,399	£ 3,411,144	£ 3,114,542
Sent to PICU or ICA	£ 1,013,207	£ 854,882	£ 822,724
Seclusion	£ 1,993,637	£ 1,968,194	£ 790,506
Intermittent observation	£ 45,507,802	£ 43,888,991	£ 41,647,446
Constant special observation	£ 35,608,935	£ 35,342,121	£ 32,732,851
Show of force	£ 3,734,743	£ 3,639,570	£ 3,044,702
Manual restraint	£ 5,607,432	£ 5,580,319	£ 5,314,846
Time out	£ 1,198,516	£ 1,136,271	£ 937,366
Cost of all conflict	£ 72,588,694	£ 71,357,039	£ 66,923,801
Cost of all containment	£ 106,157,997	£ 102,838,776	£ 94,287,365

6 Patient interviews

6.1 Background

Various policy documents have expressed concern about the erosion of quality of care in acute inpatient settings (Department of Health, 1999b; 2003), and the *Policy Implementation Guide* (Department of Health, 2002a) conceded that 'inpatient services are not working to anyone's satisfaction'. Forrest (1994) argued that the culture and dynamics of acute admission wards are so complex that most researchers have eschewed them as the focus of their interest. Quirk and Lelliott (2001) suggested that remarkably little was known about the care being provided on UK admission wards, although it was apparent that patients' experience of quality care was patchy, inconsistent and opaque. Earlier research into patients' perspectives of inpatient care suggested that positive expectations of true asylum at times of crisis were all too frequently not met (Rogers *et al,* 1993; Forrest, 1994).

Exploring the experiences of patients in acute inpatient settings more recently, Quirk and Lelliott (2002; 2004) found that the environments were toxic and unfavourable to any enhancement of well-being in vulnerable people. They observed that nurse–patient contact had diminished, and that patients were highly critical of the conditions in which they were being treated. Many viewed their time on the ward as both boring and unsafe. There was little evidence of individual care planning; the environment tended to be predominantly custodial; there was a rapid turnover of staff, extensive use of bank and agency staff and staff morale was low. Higgins *et al* (1997), Baker (2000), Ehlert and Griffiths (1996) and the Healthcare Commission Audit of Violence (2005b) highlighted poor physical environments and the low quality of life of the patients, whose days were characterised by boredom, isolation, having no structured activities, merely watching television and talking with other patients. Ford *et al* (1998) found that 40% of patients reported having no access to social or recreational activities and patients deliberately created disturbances in order to get attention.

Various studies have highlighted practices in the ascendancy in acute care, including that of special observation, although how it is defined and implemented varies nationally (Bowers, Gournay *et al*, 2000; Bowers and Park, 2001). Absconding has also been noted to be frequent; this is closely linked to medication refusal and violent incidents (Bowers, Simpson and Alexander, 2003). The Standing Nursing and Midwifery Advisory Group in Mental Health Nursing (Department of Health, 1999b) acknowledged that a change of culture is required in acute care. This is particularly needed since, as Quirk and Lelliot (2002) have observed, the hospital remains the hub of mental health services in the UK despite the rise of community services.

6.2 Aim

The interviews aimed to elicit patients' subjective impressions and feelings about their stay on acute inpatient psychiatric wards, and in particular about their feelings in relation to safety and security on the wards.

6.3 Methodology

Sixty wards were randomly selected from the total number in the study and from each one patient was randomly selected for interview. Inclusion criteria were that the person was an inpatient at the time, familiar with the ward environment and willing to participate in the study. All respondents were given a detailed explanation of the study and asked to sign a consent form. They were given a choice as to where they would prefer the interview to take place. The average length of each interview was 45 minutes. Not all selected patients who were eligible to participate in the study did so. Eight were involved in other activities when the researcher arrived on the ward; six felt unwell and a further six refused to participate. Replacements for these individuals were identified using the same randomisation procedure. Interviews were conducted using a specially devised semi-structured schedule (Patient Interview: see Appendix 4) and were undertaken by three female psychology graduates, who were experienced interviewers. Prior to the interviews they engaged in detailed discussion to ensure they avoided bias and maximised consistency during the process of the interviews. Once respondents had been reassured as to the confidentiality and anonymity of the interviews, all agreed to be taped. In addition, the interviewers made brief notes about respondents' body language and tones of voice during interview.

Interview Analysis

The tape recorded interviews were all transcribed in full and verbatim. A simplified set of transcription symbols, adapted from Silverman (1993:118–123), were used to indicate: significant pauses, which were un-timed; words which were stressed by the respondent via pitch or amplitude; and words which were not clearly heard. The interview transcripts were read by several researchers, to check for accuracy and completeness.

The actual analysis began with a further reading of all the interviews and the manual recording of 'theoretical memos' (Glaser, 1978), as a way of becoming familiar with the data and to begin the identification of emerging themes. All the interview transcripts were then entered into the QSR N6 software (QSR International, 2002) for qualitative data analysis. The purpose of using this sophisticated software package was to manage the interview data effectively and conduct the analysis in a systematic and rigorous way (Richards and Richards, 1998). Thematic analysis was then conducted, initially quite deductively according to the themes of the interview questions. This involved line-by-line analysis of each interview, coding each segment of data according to the interview questions asked, which were set up as hierarchical 'nodes' in N6. During this process of line-by-line analysis, some new codes, or themes, were identified, with similar phenomena being given the same general name in a 'constant comparative method of analysis' (Glaser and Strauss, 1967:101–116). This process marked a new stage of 'seeing' the data analytically rather than just descriptively.

This process of assigning new codes, or themes, was organised into two types: sociological constructs, attributed by the researcher, and '*in vivo*' codes which are taken from the language of the actors in the field (Glaser, 1978:70; Strauss, 1987:33). During this process, some more prominent or 'higher order' themes began to emerge, reflecting the significance attributed to them by the research respondents. As a result of this stage of analysis, codes were revised and relabelled, with some codes flourishing and being subsequently broken down into sub-codes and with other codes changing levels from 'higher order' to 'lower order' themes and *vice versa* (Miles and Huberman, 1994). This process led to the development of an 'axis' or 'hierarchy' of codes (Straus and Corbin, 1990) around the core theme of 'patients' experiences on acute psychiatric wards'.

6.4 Findings

6.4.1 Demographic data

The final sample consisted of 36 males (60%) and 24 females (40%). Respondents ranged in age from 19 to 81, with a mean of 43 years, with one respondent who did not give their age. Table 33 summarises the age groups of respondents in more detail.

Table 33. Age of respondents

Age in Years	No. of Respondents (%)
< 20	3 (5%)
20-29	10 (17%)
30 – 39	8 (13%)
40-49	19 (32%)
50-59	14 (23%)
60-69	4 (7%)
> 70	1 (1%)

The ethnic background of respondents is presented in Table 34. The ethnicity of respondents was categorised according to the ethnic group categories from the 2001 UK population census. For thirteen (22%) of the respondents it was their first admission to an acute psychiatric ward.

Table 34. Ethnic Background of Respondents

Ethnicity	No. of Respondents (%)
White	40 (67%)
Black or Black British	11 (18%)
Asian or Asian British	6 (10%)
Mixed	0
Other ethnic groups	3 (5%)

Findings from interviews

In presenting the key findings from the interviews, for reasons of confidentiality respondents are referred to by a numbered code, preceded by a letter to represent the region where they were in hospital (South, Central or North). Within the interview extracts, the following transcription notations have been used: (.) pause; (pause) long pause; (…) some words missing; Single underline for extra emphasis; [unfinished] or [incomprehensible]: as appropriate.

6.4.2 General feelings about being on the ward

The opening question 'How do you feel generally about your stay on the ward?' elicited some interesting insights regarding people's overall impressions about their current stay in hospital. In general, these responses were very mixed, with 17 respondents making positive comments about their stay, 17 respondents reporting negative feelings, seven respondents expressing indifference or saying that the experience was 'all right', and 13 respondents reporting mixed feelings. The remaining six respondents either did not address their feelings in general terms or talked more specifically about other issues.

Positive experiences

Seventeen patients spoke positively about their stay in hospital, saying that it had been beneficial to them, as the following quotation from respondent S14 illustrates:

> Interviewer: How do you feel in general about your stay here?
>
> My stay here has been, um, (.) has been definitely beneficial for me (…) And challenging at times. Um, but in general I think that it's definitely fostered, a, me leading towards healing and feeling like I'm going to live happily and independently on my own again.
>
> Interviewer: OK. So it's been positive then?
>
> Yes it's been positive, definitely

Many of the patients' positive experiences included positive comments about the staff, in terms of being helpful, doing things for the patients and generally look after them, as the following two quotations illustrate:

> Interviewer: How do you feel in general about your stay here?
>
> The staff are very good. They do your washing and everything. You have nice meals. Yes. Very well indeed.
>
> Interviewer: You feel quite happy about it then?
>
> Yes. Peter and Matt [names of staff that have been changed] are very good, yes, they're very good. (C1)

Other patients talked more directly about the fact that staff look after them:

> The staff are always there (pause). They look after you. Um, (Pause) It's a (pause) hospital and that's how it is, like a hospital. (S7)
>
> They've looked after me really well. Because I hear voices, when I say to them I'm hearing my voices, they say come and do this, come and do that and take your mind of things. So, really good, yes. (C29)

However, it is important to acknowledge here that not all patients had positive experiences of staff, or that their experiences were more mixed, as will be reported later in this chapter.

Negative experiences

Seventeen patients expressed feelings negatively about being on the ward. Some patients were just unhappy about being in hospital, saying they shouldn't be there and wanting to leave and be at home, as these quotations illustrate:

> I don't like hospitals, (…), I don't get on well, and when I'm in hospital, the moment I get in I want to get out (S6)
>
> I want to go home but I can't discharge myself (N3)
>
> I don't like it here. (.) I shouldn't be here.
>
> Interviewer: What is it that you don't like about it?
>
> The crazy people around me.
>
> The other patients?
>
> Yes (S3)

The issue of patients not happy being on the ward with other people with mental health problems will be developed further later in the chapter.

A number of patients talked about disliking the restrictions of ward-life, particularly if they were under a section and unable to leave the ward, and six respondents went so far as describing the ward experience as being like a prison. Some of the restrictions patients talked about are shown below, in response to being asked about their stay on the ward:

> Well I'm not (.) comfortable. It's not an environment I like. I'm on a
>
> Section so I have to stay on, you know. (C13)
>
> (Pause) I don't know, it's kind of like (.) you feel like you're in a
>
> prison really (.) with the locked doors and everything. (S19)
>
> I don't like it. As simple as that, you're locked here 24 hours a day, you can't even go over the shops to get ciggys or papers or anything. There's nowt to do only sit and watch the telly, they don't do nothing, during the day, just lounging around you know, so that's not very good if you're mentally ill is it? (N52)

Being bored whilst in hospital emerged as a significant theme from the interviews, with 17 patients (28%) talking about feeling bored. Again this was related to not being allowed out, there not being enough activities to do on the ward, and the time of the week, with 11 of the respondents talking specifically about being more bored at the weekends (see also section on weekends). The following quotations illustrate some of the things that respondents said:

> In here sometimes it can be boring, especially if you're not allowed out, it can get really boring … (S2)
>
> Interviewer: What don't you like about the way the ward is set up?
>
> I just don't like it; there's nothing to do. It's boring. That's why I didn't even want to get out of bed today. There's nothing to do at all.

> Nothing to fill your time whilst you're here?
>
> No. I've stayed in bed half the day today because I knew there would be nothing to do. (S3)
>
> Interviewer: How does it feel when you're on the ward at the weekend?
>
> Boring, sometimes there's nothing for us to do. Even in the week sometimes, do you know what I mean? There should be more activities. There should be a lot of things you can do. It gets a little bit boring. (N39)

Mixed feelings

Thirteen respondents reported having mixed feelings about their stay in hospital, in which some aspects were positive and other aspects were negative, often about the staff or other patients. The following quotations demonstrate some of the mixed feelings expressed by respondents when asked about their stay:

> Urm, mixed feelings. Some of the staff are very helpful and courteous and respectful and some aren't (…) So it's kind of confusing on the ward. I will ask staff for my medication because I suffer injury to my back and one Charge Nurse will say 'no' and I will ask another nurse who's not a Charge Nurse and they will say 'yes'. So I'm getting conflicting (unfinished) (C26)
>
> Not too bad. The nurses are great, or most of them. I feel comfortable to an extent but not with the patients. I feel as though I'm put here with patients that are a lot worse than me (…) Some of these patients have got manic depression where they can become violent. So I feel that I've been put on a ward where there are dangerous people whereas I'm not dangerous. I'm not a danger to myself or to other people. You know. I'm here for depression and alcoholism. I just think that the way the ward's mixed up is not quite right. You know. (S12)

Four of the respondents said that their feelings had changed over time; at first they were unhappy about coming into hospital but over time they accepted that they needed to be there. Two of these respondents were in hospital for the first time, including respondent S2, who said the following when asked about the hospital stay:

> It's helped me (.) I think it's helped me. First of all I wasn't happy to come but (.) I felt like I had to. (.) I thought if I was left out in the community that I would hurt myself or someone else. (S2)

So for some patients, even though they don't want to be in hospital, they acknowledge that their stay has helped them and even protected others.

In summary to this section on patients' general feelings about being in an inpatient psychiatric ward, overall respondents' feelings were quite mixed about a number of different things, including the staff, other patients, ward routine and whether the experience is beneficial or not to them personally. Being bored was a significant theme, and this theme will be explored further in the chapter regarding activities on the ward and what it is like at the weekends.

6.4.3 The ward environment

Thirty-three respondents talked positively about the physical environment of the ward. The respondents talked about a variety of things they liked, such as the ward layout, particular rooms like the TV room where they can watch TV or videos, or the smoking room where they can smoke, a day room where they can talk to other patients or visitors. Some wards had special rooms that respondents liked, such as a quiet room, music room, a conservatory and an exercise room. Patients also spoke positively about the furnishings, especially comfortable chairs and settees, the décor, a couple of respondents said their ward was very clean and that there were enough bathrooms and toilets.

Five patients (both males and females) said that a physical segregation between men and women on the wards was a good thing, with a further patient saying they wished that men and women had separate areas on the ward where they were staying. Here are some examples of what respondents said when asked what they like about the way the ward is set up:

> I'd say that the way they've got the women split up from the men to protect to the women's dignity that's, I think that's important. That's good. (S2)

> The females and males being separated which is good because if you've had problems with sexual abuse and stuff you don't want to be with males all the time. (N8)

Twenty-four respondents reported negative aspects regarding the physical environment of the ward. These comments ranged from just not liking anything about the ward to specific remarks about the lack of space, décor and colour of walls, a lack of comfortable furnishings, not enough quiet rooms to go to, such as a quiet or relaxation room. A few patients complained that the ward was noisy, with patients shouting. One patient said that a bell was constantly ringing, to signal people wanting to enter or leave the ward. A number of patients talked about the internal space within the ward. Five respondents said that the ward was not big enough and would like more space, as the following quotations illustrate:

> Interviewer: Is there anything that you don't like about the way the ward is set up?

> The physical environment (.) very small. The pool table should be down here because more space. I tell them, they don't listen because they think me mad man. (S7)

> Interviewer: Do you like the way the ward's laid out?

> Could be a bit better.

> Why?

> Bit more open space.

> What about your bedroom, are you quite happy with that?

> A place to stay. (N3)

Bedrooms

Many respondents talked about the sleeping arrangements on the wards, with contrasting opinions and experiences reported regarding separate bedrooms and dormitories. Ten respondents said that they preferred being in a single room, mainly because it provides some privacy, quiet space, and also a safe place to keep personal belongings, as the following quotations demonstrate:

> Interviewer: Is there anything you like about the physical environment of the ward?
>
> I don't think it can be improved really. I think the separate bedrooms are one of the greatest improvements that has ever been made. Giving full privacy for people that need it, also a place to relax, lying in bed. That's particularly important for people in a place like this. That's what I feel. (S8)
>
> Interviewer: Do you like the way the ward's laid out?
>
> Quite nice. We all have separate rooms
>
> Do you prefer having your own room to having a dormitory?
>
> It's better because you don't get your clothes stolen, your underwear stolen. All locked away, like in the old (Incomprehensible) you got things stolen. (N5)

The problem of theft on the wards, something that was experienced by a number of the respondents, will be explored in greater depth later in this chapter.

A further seven respondents spoke negatively about sharing a dormitory with other patients, predominantly because of a lack privacy and a concern for the safety of personal possessions, similar reasons for why respondents prefer single rooms, as shown by this response to a question about being in a dormitory:

> I was in a dormitory for a while and you just don't get any privacy and you can't lock things away. (S20)

Some respondents also talked about dormitories being noisy, with snoring by other patients mentioned a couple of times. A couple of respondents talked about feeling personally unsafe in a dormitory environment, because they were anxious about the potential behaviour of other patients. However, it is interesting to note that both these respondents were in hospital for the first time, and so it could be that their perceptions of personal safety were stronger than actual experience. Another two respondents, who both reported being attacked by another patient whilst asleep in bed, both talked about the other patient being sorry and they understood they were unwell and didn't blame them for the incident.

Despite a number of respondents not liking the dormitory environment, five patients were indifferent about where they slept or said they didn't mind dormitories. Another three patients talked about preferring being in a dormitory as it was more sociable and enabled interaction between patients, as the following quotation shows:

> I'm quite comfortable with a dormitory set up. I like to have people around me. I feel that (.) I mean, just quite casually you say to your fellow dorm mates "How are you Fred?" or if you see someone's distressed you can go and tell the nurses. There's more (.) of a spirit in the sense that they, we look after each other. (C14)

In summary then, of those patients who expressed a preference, most preferred the choice of having a single room to have greater privacy and to keep their belongings safe. Dormitories were less favoured because of a lack of privacy and concerns of safety for personal possessions. However, a minority of respondents actually preferred being in a dormitory, as they liked to interact with other patients.

Things to do on the ward

Sixteen respondents talked about activities available on the ward, in OT Departments and other activities that they have done off the ward. On the ward, respondents talked about there being TVs to watch, videos, play stations, board games, pool tables, table tennis, exercise machines and so on. Some respondents also talked positively about being involved in activities such as art therapy, music appreciation groups, cooking classes, yoga classes, computer groups, being able to use a gym in the hospital and playing badminton. The following quotations demonstrate some of the activities that respondents engage in to fill their time whilst in hospital:

> Interviewer: What do you like about the way the ward is set up, in a physical sense?
>
> There are games to play, television to watch, we can do whatever we want to do. We've got separate bays for clients to go and watch the TV. A separate area for the men if they want to watch football or something else. (C16)
>
> I do a lot of OT which takes you off the ward anyway. I like music, so I do a lot of music programmes with them (.) a lot of computer (.) I wasn't very good with the computer we (…) go into community, the libraries, we went to singing section, to see if we wanted to join and all that. So they really keep my interest high. I have personal friends I know them, that's what I do to keep me off the ward. And, I go to the library, I'm on the Internet writing emails and all that. (S6)

However, not all respondents thought that there were enough activities to do, which relates to the previously reported theme of respondents feeling bored whilst in hospital. Other respondents also said that what was available was broken or damaged, such as a snooker table or table tennis table, or what was available was not very stimulating, as the following quotations illustrate:

> The worst thing is not having enough activities on the ward (…) Boring, boring, there are no activities whatsoever (…) Everybody is desperate; you're just walking around, there's absolutely nothing to do. I said what we need is activities, morning or afternoon. (N9)

> I think a place like this definitely needs an Occupational Therapist or a Department with an Occupational Therapist, um, but what you offer (.) is really questionable. (Pause) I find that you might go down there and you just sit with a pencil and doodle, that is hardly stimulating the brain. There are activities, very simple things, but I think may be the patients should be involved or engaged in activities where they're more stimulated. (C13)

It is clear from the interviews that many respondents find their stay in hospital boring, with not enough activities to pass the time. However, some patients do seem to enjoy the activities that are made available to them. It is likely there is a variation in the activities available on different wards, with some wards offering better facilities and including OT activities, than others. However, it could also be the case that all patients are individuals and some like to play pool, watch the TV or do art therapy, and others simply do not.

6.4.4 Weekends on the ward

> Interviewer: How does the ward feel when you're on it at the weekend?
>
> Boring.
>
> Is it?
>
> It's very boring.
>
> Is it any different to the week?
>
> It's different because during the week you have other things going on which passes time but during the weekend there's nothing. (S16)

The theme of patients being bored during their hospital stay was also significant when respondents were asked about what it was like at the weekends. Twelve respondents found weekends boring, with nothing much to do. A further ten respondents commented that the weekends were quieter than the rest of the week, with less going on as many patients were on leave. The following quotation sums up these feelings:

> Interviewer: How does it feel when you're on the ward at the weekend?
>
> Like it's a waste of time because everybody just sits around waiting for Monday. It's just very quiet and lots of people go home at weekends, so it's just a case of (unfinished), it's like waiting for paint to dry on the weekends. (N10)

Seven respondents noted that at the weekends there were less staff around, and that this wasn't always perceived as a good thing, as commented by respondent N36:

> Well, there is only a skeleton staff on at weekends, so I think there's room for improvement there. There could be and should be more staff, even if it was just from a student capacity, you know. (N36)

A combination of the ward being quieter at the weekends, with less activities for patients to do and fewer staff around evoked negative feelings among 17 respondents, who described the weekends using words such as: difficult, miserable, lonely, depressing, weird, unnerving, panicky and anxious. It seems to be a time when emotional problems were likely to surface, and when some who were sad and lonely during the week became even more so, as the following quotations demonstrate:

> There's no activities set up. You just have time to think all the time and there's nothing to distract you from your problem. (N8)

There seems to be more people around in the week. At the weekend it

just makes me really feel anxieties (.) they all build up over the weekend. (C18)

> I feel that at the weekends it's very quiet. When I feel a bit paranoid it's a bit unnerving but on the other hand it's quite nice to have peace on the ward, when it's been busy all week - it's a balance of things really. (S9)

This final quotation from respondent S9 strikes a balance between how patients can feel unnerved at weekend, but sometimes, if they are feeling more secure in themselves and with the ward environment, then they can enjoy the peace and quiet at the weekend. Three respondents talked about actually enjoying the weekends because they were relaxing and peaceful. Four respondents were indifferent about the weekends, simple saying they were alright. A further eight respondents said that the weekends were just like another day and no different to the rest of the week, as the following quotation shows:

> Everyday, everyday is the same basically, it's the same old routine, you get up in the morning and have your breakfast then you just sit around all day then (.) at lunchtime you have your lunch, tea-times about 5:00 O'clock. I mean I go to the gym (.) and do badminton as well. (C5)

6.4.5 Evenings and night-times on the ward

Respondents had a variety of comments about what it was like during the evenings and night-times on the ward. Twelve respondents talked positively about the evenings because they had more time for social activities, to see visitors, time to talk with other patients and staff and generally the atmosphere was more relaxed. A further five patients said that the evenings and night-times were just quieter, with fewer people around. Ten respondents said that there wasn't really much difference to day-time and another six patients said the evenings and night-times were just boring, which is in common with respondents' feelings about the weekends and about being on the ward in general.

Seventeen respondents reported that evenings and night-times could be noisy, disruptive and even chaotic. Some respondents just talked about general disturbances which could be disturbing, but more annoying than worrying, as the following quotations illustrate:

> Sometimes the patients cause a lot of chaos. I've witnessed that on other wards but not here. There's a lot of walking about, people wanting food, people wanting a drink, people screaming, it can be very chaotic sometimes. (S6)

> Um, (.) You obviously get some people who are snoring and someone who's just fidgeting all the time (.) or won't turn his light off until late, just fidgeting and doing nothing important. (.) That gets on your nerves, but it's all right, it's not that bad. (C5)

However, for six of these respondents, this atmosphere or particular behaviours by other patients (or their perceptions about other patients) made them feel unsafe and frightened during the evenings and night-times, as the following quotations demonstrate:

> Interviewer: When it's evening and night-time on the ward, how does that feel?

> Well we've had a few upsets.

> Have you?

> Yes. Fights between patients (.) and I find that distressing. I find that really frightening; do you know what I mean? (S19)

> Um, (pause) Sometimes your feelings run away with you. Sometimes (pause) nothing happens (.) and then sometimes on an evening you might get those with alcoholic-related offences (.) have sneaked out (pause) they come back drunk and aggressive. That frightens me. (N12)

The extract from respondent N12 has introduced a prominent theme from the interviews that some patients drink on the wards, or come onto the wards after drinking, and this can be frightening for other patients. This theme will be explored later in the chapter. There is a suggestion here from the data that more conflict occurs during the evenings and night-time, particularly when some patients are not allowed to do something or don't want to take their medication, as the following quotations suggest:

> That's when you find most conflict, in the evening.

> Why do you think that is?

> I think it could be (.) tiredness, boredom, sometimes patients want to go out and they can't go out. They want their own way certain times and they can't get it. Like when I first came here I wanted to leave and I was told I couldn't. (S2)

> Interviewer: Are things different in any other way during the night?

> Urm (pause) only when it's time to take medication. You find some of the patients kick up a fuss about what kind of medication they're taking and they don't want to take the medication. I mean you can get some noisy, bad, patients wanting to fight or whatever it is. (N12)

In both these extracts there is a suggestion that there has been some negative interaction between staff and patients, which may have been a trigger for conflict. Some respondents talked specifically about staff in relation to the evenings and night-times, although the comments were mixed. Four respondents said that they found some of the night staff friendlier, helpful and more available to patients than staff during the day, as the following quotation illustrates:

> I think they are very professional because I have my problems at night when I have nightmares (.) at the moment thanks to medication I am getting over it, but I find the night staff very helpful. They are always there. (C40)

However, another four respondents spoke negatively about the night staff, with comments that they were not helpful, not so available. One respondent said that the night staff were mostly asleep.

6.4.6 Other patients: safety and security

Twenty-one patients talked positively about the other patients, talking about getting on with most people, making friends with other patients and how people generally help and support each other:

> Interviewer: What do you think about the other patients on the ward?
>
> I like them. I get on well with them. I find them very helpful. Talking problems through with other patients that you've had yourself, it's quite therapeutic. (N33)
>
> They're understanding. I've told a few people about my situation and they've said - oh, I hope you get well soon and we're here for you if you want us. So they're all really nice. I know they've all got their own problems but they're always there for me, as I'm always there for them as well. I'm always making cups of tea, asking if they're OK babe/mate. So yes, I get on well with the other patients. (C29)
>
> There's a good bunch of patients in here at the moment. Everybody is reasonably normalised, I know we're all ill but everybody is behaving reasonably normally. I've been in here when the patients have been really disruptive. (S9)

The second quotation from respondent S9 introduces a theme mentioned by seven patients, that the atmosphere and levels of disturbance on a ward can be determined by the mix of patients, as further illustrated by the following quotation:

> I do feel there can be a clash of personalities sometimes (.) arguments (.) people getting annoyed (…) As I say, I think people have all got different illnesses and sometimes you've got to accept that some people are the way they are because of the illness. So you've got to (.) that's the way I feel, you've got to tolerate sometimes and be as understanding as you can. Help people like, don't start fighting with people because at the end of the day they've all got their problems. (N39)

Being worried or frightened by other patients

Respondents were asked whether other patients on the ward worried them, or if they thought that other patients might be dangerous towards them. These questions were asked separately, with 33 respondents reporting that they were not worried by other patients on the ward and 29 reporting not thinking other patients were dangerous (with 21 of these being the same respondents). The following quotations show some of the comments made by respondents:

> Interviewer: Do the other patients ever worry you?
>
> No, no, no, they don't worry me at all. (N21)
>
> Interviewer: Do any of the other patients worry you at all?
>
> No. (.) They're a bloody nuisance at times, but they don't worry me. Am I scared of them?
>
> Yes, that's what I mean.
>
> No. (C14)
>
> Interviewer: Are there any patients that frighten you on the ward?
>
> No no-one frightens me. I can look after myself. (C12)

However, 22 respondents did talk about being worried by other patients, and 22 respondents said that they thought other patients might be dangerous towards them (with 14 of these being the same respondents). Some patients said that other patients worried them because of how they looked at them or because of their bizarre or aggressive behaviour, as the following quotations illustrate:

> Interviewer: Do any of them worry you?
>
> Um, (pause) One of them does worry me actually.
>
> A man, a woman?
>
> A man, he's big.
>
> What does he do?
>
> He doesn't do anything, just stares at you. He worries me a bit. (C5)
>
> Interviewer: What kinds of things happen on the ward that scare you or make you feel uncomfortable?
>
> Just like I said before, just sometimes bizarre behaviour. It just makes you feel unsettled and wishing you were a million miles away really. (N10)
>
> There are patients who sort of either deliberately or through their illness are very aggressive. (.) That's when I don't feel comfortable because you don't want to get involved in something which is going to cause you harm or, an argument breaking out and then, you know, the tension building up. (C13)

Respondent C5 who talked about being worried by a 'big man' was a male patient. Two female patients said that they were worried about male patients in particular. Overall, ten female patients (42%) said they were worried by other patients and 12 male patients (33%) were worried (not a significant difference). Overall, nine women felt that other patients might be dangerous to them (38% of all female respondents) compared to 13 male respondents (36% of all males) so there was little difference between the genders in this respect.

Some of the twenty-two patients who thought that other patients might be dangerous to them, talked about their perceptions that other patients had the *potential* to be dangerous:

> Interviewer: Do you feel that some of the other patients might be dangerous to you?
>
> I think they could if they wanted to be. (Patient laughs)
>
> Why do you think they might be dangerous to you?
>
> The way they carry on (pause) ranting and raving. (S3)
>
> Interviewer: So do you think that some of the other patients might actually be dangerous to you?
>
> (.) I think they're all capable of being dangerous, to be quite honest.
>
> Do you do anything to keep yourself safe from those people?
>
> I distance myself. (S19)

Respondent S19 talked about keeping away from some patients, as a way of staying safe. Many respondents talked about their strategies to keep safe on the ward, and this theme will be returned to later in the chapter. Regarding other patients being dangerous, three talked about incidents they had witnessed and ten respondents talked about actual incidents that had happened to them, so they were speaking from direct experience. The respondents who talked about incidents that they were personally involved in ranged in severity, from other patients shouting at them, verbal abuse, ripping clothing they were wearing to physical abuse, as the following quotations illustrate:

> Interviewer: What kinds of things do they do that makes you feel that they might be dangerous to you?
>
> Just coming up to me; coming right up to my face and laughing or doing things like that or doing something so you don't know if they're going to hit you or anything. So your initial reaction will be to stand back. So it's just things like that they do really. Especially if you've been hit before because you might be expecting it. (S12)
>
> Interviewer: Are there certain things that other patients do that make you feel that they would be dangerous to you?
>
> Yes, you can encounter verbal abuse and you can encounter, sort of, gestures, which are not appropriate, they appear to be threatening you or whatever. So yes, you do encounter that. (C13)

> Somebody attacked me here.
>
> Interviewer: They did? Right. Can you tell me a bit about that.
>
> He was talking to staff and suddenly attacked me (pause) but staff they stopped him.
>
> How did you feel after that then?
>
> Not bad, fine. He's fine now. He was ill. He was not well (.) unwell, that's why he did that. (C27)

As suggested in the earlier quotation from respondent C13, a number of respondents were aware that 'dangerous' or frightening behaviour by other patients was a consequence of their illness, and some even expressed concern about them. In fact, four respondents said that they were worried for the other patients rather than for themselves, as the following quotation shows:

> Interviewer: Do the other patients worry you at all?
>
> When they're hurting themselves yes because you want to go and help them. You don't want them to just sit there cutting themselves. If there's no staff around you find you have to help them really. (C38)

So in summary to this section, just over a third of all respondents said that other patients worried them or thought they might be dangerous to them. Ten patients had direct experience of other patients being aggressive towards them, and thought that those patients were dangerous. But some patients were aware that other patients' behaviour was a result of their illness and they were worried about them rather than for themselves.

Violence and aggression on the wards

As already described in the previous section, respondents did talk about experiencing violence and aggression on the wards, either during the stay when they were interviewed or during previous stays in hospital. Twenty-seven, just under half of all the respondents, had experienced violence or aggression on the wards; fourteen had witnessed aggression between patients, mainly fighting; twelve respondents reported being the victims of aggression by other patients; and one patient admitted hitting another patient.

Fourteen respondents reported having seen fighting or other aggressive behaviour between patients, and two respondents actually described how they stepped in and stopped the fighting, as illustrated in the second quotation from respondent C7:

> There's two women in here (.) when she's ill she tends to say what she thinks and she really gets on people's nerves and, she said something to this girl and she pulled her head down and just punched her in the face. (S20)
>
> Well only a couple of nights ago there was a fight down the bottom here in one of the bedrooms. I was in the next room, I heard the scuffle and I was the first one there and I parted 'em. The staff went running down, you don't get no thanks nor nothing. Right. But I went in there and stopped what could have been a blood bath. (C7)

Twelve respondents described how they themselves had been attacked by other patients whilst in hospital. Here are examples from two respondents explaining what had happened to them:

> Yes, I got thumped downstairs by one of the guys in the queue. He thumped me twice, the first time he thumped me his carer just looked at him and said 'Don't do that again' and then he thumped me again and I was as stunned as she was. (N10)

> There was this time that a couple of days ago, that a patient attacked me. I was lying on the couch just there, she gave me a big bang on my head, which is still hurting up until now. And I learnt that she has a violent, very violent history. I don't wish to talk about (incomprehensible). But she's dangerous but she seems nice to everybody she talks to, she eats, she do everything, but that violence, maybe it's part of her illness. Although I was hungry I said I am going to fight back, I am going to revenge. But later I just realised that I have to forgive I am a Christian and secondly, maybe it's part of her illness that's making her to be attacking people. (S17)

Both these examples demonstrate that assaults by other patients were frequently unexpected and 'out of the blue'. The quotation from respondent S17 also provides another example of some patients having the awareness that another patient's aggressive behaviour may be caused by their illness, and accordingly this respondent said that they had forgiven the patient for the attack.

Intimidation and bullying

Eleven respondents talked about incidents of intimidation or bullying, particular for cigarettes or money, as the following quotations illustrate:

> There's some in here that keep asking for money. I ain't got any money to give anybody in here.
>
> Interviewer: Some are harassing you a bit are they?
>
> Yes. They're like bullies. (S3)

> Oh, yes, yes, yes. There are always people asking for cigarettes and whatever and there's only so much you can give. At the end of the day we're all in hospital, we're all in the same situation (…) and you find that if you don't give somebody a cigarette and they know you've got it, you know, they start calling you a bitch and all that. I tend to ignore it. (S12)

Two respondents talked about how they tried to help other patients who were being threatened, as the following extract discusses:

> Interviewer: Have you seen other patients looking frightened?
>
> Every day. (…) I hear them. They talk to me. They come to me for help.
>
> What sorts of things do they say to you?
>
> He's threatening me, he's threatening me, she's threatening me, she's saying this to me. Some of them won't even go in the smoke room without me going in with them.

> Is that because they're quite anxious do you think?
>
> Well (.) some of them do get a bit of bulling. The more vulnerable they are, them ones, you know the bully ones, they'll take advantage. (C7)

Patients' strategies to keep themselves safe on the wards

A key theme that emerged from the interview data was how respondents had strategies they used to keep themselves safe on the wards. Twenty-four respondents said that they stayed out of the way of patients who they thought might be dangerous or avoided potentially dangerous situations. Thirteen of those respondents actually used the phrase 'I keep myself to myself'. Other strategies included walking away if conflict arose, being alert to the possibility that things could get unpleasant, trying to keep on good terms with other patients, staying near other patients or staff and keeping as calm as possible. The following quotations illustrate how people keep themselves safe:

> Interviewer: So what sort of things do the other patients do that make you feel that they're dangerous to you?
>
> I don't speak to them, I keep away from them. I just stay in my bed.
>
> So you avoid them because you think they might be dangerous or might hurt you?
>
> Yes. (C12)
>
> Interviewer: Do you think they won't be dangerous because you do anything to keep yourself safe on the ward?
>
> No. I just don't mix. If I see them walking past me I will just say 'alright' or something like that but, I just don't mix or get myself in a conversation or anything. No I just want to keep myself to myself. (S16)
>
> Interviewer: Overall, how do you keep yourself safe on the ward?
>
> By keeping myself to myself.
>
> Any other ways at all?
>
> No, not really, just watching everybody, the nurses and the patients. (S3)

When respondents were asked if they knew how to get help if something dangerous or frightening happened on the ward, 37 respondents said that they would call or run for the staff to come. Eight respondents said that they would press an alarm button on the ward to summon help. Four respondents said they would try and deal with the situation themselves, with two of these saying if that didn't work they would call the staff. Three respondents said they would ring for the police, two said they would run away and three were not sure what to do.

6.4.7 Theft, alcohol, drugs and sexual impropriety

Many respondents talked about unpleasant behaviour occurring on the wards, specifically theft of personal property and other patients drinking alcohol or taking drugs. Only a few respondents talked about inappropriate sexual behaviour. These themes will now be addressed in turn.

Theft

Theft of personal property was a big problem reported by respondents. Twenty-five respondents stated they had either had property stolen from them or knew of others who had had property stolen. The most common items to be stolen were clothing, in particular underwear, money, cigarettes and toiletries. Two people had their mobile phones stolen. One respondent reported using other people's toiletries. The following quotations give examples of some of the things reported stolen:

> Interviewer: What about theft?
>
> Oh yes, bits and bobs. Money usually goes missing. Socks, underwear, stuff like that. (N4)
>
> You get a lot of that stealing of property. (…) I've been out this last two or three weekends and every time I've come back there's something missing. One weekend I came back, I'd left four razors, they'd gone, all four. The weekend after I came back, they're only little things, but my comb had gone. (C19)
>
> Yes all my underwear went missing out the laundry. (Patient laughs) And it was my good underwear, I put it in there and left it on the thing, the next day I went in and it had gone. I didn't report it because I thought there was no point. (N10)

Most felt that having things stolen was part of life on the wards, and that nothing could be done about it. Some respondents talked in a way that suggested it was really their fault for not locking things away:

> *So someone's actually been in your draws?
>
> They were on top actually. (.) My fault I suppose in one way. I should really lock them up. Your top draw locks. You have 3 draws. Since then I have started to lock them up, toothpaste and everything. (C19)
>
> I had £5 stolen from my room today. I carelessly left it on my dressing table. (S14)

Some respondents were aware of the problem and had strategies to keep their property safe, as the following quotations illustrate:

> I keep my property safe by getting my clothes out of the laundry as soon as possible when they're dry and I lock my money up in one of the lockers provided. (N33)
>
> You put your money in Patient Estate. If you don't put your money in Patient Estate it's your own fault isn't it! (C1)

Alcohol and drugs

It has already been reported in this chapter that alcohol and drugs on the wards is a problem and that some patients find this behaviour distressing. The use of drugs and alcohol by patients, with the smuggling of drugs and alcohol onto the wards, was discussed by 35 respondents and is a significant theme to emerge from the interviews. Eight respondents said they had seen patients taking drugs and alcohol, 12 gave specific examples of drug-taking by patients (with two patients admitting taking drugs themselves) and 15 respondents talked about other patients drinking alcohol on the wards, or seeing it being brought in. The following quotations give examples of what respondents had to say on this topic:

> There was a woman, she was drinking vodka in a coke bottle. (N30)
>
> Somebody sneaked alcohol in and I can't believe they sneaked alcohol in under a coat. (N5)
>
> I think all the drink, like the drinking, the amount of alcohol things like that, the drugs that come through the ward. Too much is getting through the front door. (.) I don't react well to alcohol so I have to stay away from it. Sometimes it's really frustrating when you've got people who (.) who are obviously really slaughtered and (.) they're just like drinking and drinking.
>
> Interviewer: So is that something that actually happens on the ward?
>
> Yes, all the time. (S20)
>
> There's a problem with drugs. You get the odd person smoking weed and stuff like that on the ward. Sneaking it in the toilets, sneak it around. Sometimes as you walk around you smell weed.
>
> Interviewer: On the wards?
>
> Yes or see someone pass some weed over to the next person so that's the only thing (…) I've seen weed dealing. Yes. That's drug dealing in't it? Weed isn't a hard drug but it's still dealing. (S2)

Five respondents talked about buying drink or drugs for other patients, but they often feel pressured or intimidated into doing this, as the following quotations demonstrate:

> I get annoyed when I get asked to go and get a drink from the corner shop by the patients. One girl asked me about three or four times last week. She was in the ward and in her room (…) this girl abused the fact that I was short of money she said 'I'll buy you buy 20 cigarettes if you go and get me some vodka'. She had two bottles in one day, she asked me to throw the bottles away. Actually I did it the once for her. (C16)
>
> Yes. One night I was beat up because of drugs, told to get a small quantity of drugs (.) it's not allowed on the ward but they said if you don't get it for me you are in trouble. (S6)

As discussed earlier, in the section about evenings and night-times on the ward, some patients find the drinking and drug-taking on the wards distressing. Twelve respondents reported negative feelings about it, using words such as: frightened, vulnerable, sad, unsafe, insecure, angry and disgusted. The following extracts describe how some respondents were feeling:

> Interviewer: How does it make you feel when patients are taking drugs or alcohol?
>
> (Pause) Very frightened. (N12)
>
> It makes me feel vulnerable because I can't stop them from doing it. (C35)
>
> [I get] quite cross actually because the fact that we're in hospital to get better. (N22)

Four respondents talked about having drug or alcohol problems themselves that they were trying to get over whilst in hospital, and so other patients' behaviour was not helping them, as the quotation from respondent N8 shows:

> Interviewer: How does this make you feel?
>
> Upset in a way because I'm trying to get over my problems with difficulties and if people are just blatantly leaving things around (.) it is a problem, especially if I'm having a bad day. It's just so easy to pick that drink up and go back to where I started really. (N8)

As drinking and taking drugs on the wards is a subversive activity, and also illegal in terms of the drugs, some patients seemed uneasy talking about it, with four respondents saying they didn't want to comment, as this quotation shows:

> Interviewer: Are you aware of any patients who are taking illegal drugs or alcohol on the ward?
>
> No. (.) I'll keep myself out of that; I'm not going to say anything. No comment. (N39)

However, a further twelve respondents said that other patients taking alcohol or drugs on the wards either did not bother them, or was none of their business, as this extract from respondent C14 illustrates:

> Interviewer: How does it make you feel that people are using drugs on the ward?
>
> None of my business. I mean, (Pause) unless they're the hard drugs which affects the mind much more but if it's soft drugs, as I call them, I don't have a hang up on them. (C14)

Respondents gave various responses regarding the reactions of staff to these activities. Some said they didn't know about it, or couldn't prove it, others said they weren't doing much to stop it, whilst others thought that staff were dealing with the problem effectively, as the following quotations demonstrate:

> Interviewer: Do the staff not know that's going on?
>
> No. I think they suspect but they haven't got any proof. They haven't caught anyone. (S2)

> Well two weeks ago, (incomprehensible) and in the end I got so pissed off I went down to the staff room and I said 'Look are you going to sort this out?' and I found out later one of the Care Assistants actually said to one of the girls (name of patient) 'You've been drinking' and they know she wasn't allowed off the ward at the time. When I told a member of staff she said 'I searched her!' I said, 'You say you know what you're doing, but there's windows, people just have to come through the back gate, stick it through people's windows.' (S20)

> There was guy that was smoking cannabis but he got thrown off the ward. Got caught straight away.

> Interviewer: So you think it's quite good, they notice quite quickly.

> Yes it's good in a way. (.) Keeps drugs off the property. (C43)

Inappropriate sexual behaviour

Very few respondents talked about inappropriate sexual behaviour between patients or between staff and patients. One respondent disclosed that he had had sex with a female patient the previous week, but did not feel that this was inappropriate. Another male respondent talked about having sexual attention from females on the ward, and a further four respondents said they thought that some patients had sexual relations whilst in hospital, but did not condone it, as this quotation suggests:

> You get people having relationships on the wards, you know, I don't know, and I don't much care about really. Good luck to you, if you like someone, fair enough, it's better than extortion! (Patient laughs) (N39)

On one ward, there was a rumour that a male member of staff had raped a patient and this worried one female respondent. One respondent had heard male staff chastising female patients and making remarks of a sexual nature. Another female patient perceived behaviour by a male staff member as being of a sexual nature:

> Yes, that happened to me as well. It's happened to other patients. The sexual thing, I saw a male nurse's fly open. It was open I was shocked. I wondered why. I thought there was something wrong with him as well. His fly was open. I see signs of stress, showing stress to me, he was twitching, sticking out his tongue at me, he was being downright disrespectful and I wondered if he was drugged up. All these things I've seen and it wasn't (.), it was true because he wasn't taking me seriously. (C26)

In summary to this section on unpleasant behaviours on the wards, both theft of patient property and the use of alcohol and drugs by some patients were reported to be significant problems. Over a third of the respondents reported having personal property stolen, or knew of theft of property that other patients had experienced. Regarding the use of drugs and alcohol on the wards, over half of all respondents reported this happening, and some patients found it distressing. Inappropriate sexual behaviour was not reported as a widespread problem.

6.4.8 Racism

Thirty-four respondents said they had not experienced or witnessed any racism on the wards. However, 15 respondents said they had witnessed racism or felt that there was racial tension on the ward. Five respondents said they had personally experienced racism on the wards, and they were Black or Asian. Four respondents admitted to being verbally racist towards others. Of the five respondents who had experienced racism, two of them had experienced verbal racial comments, and four respondents talked about feeling racial tension from other patients or staff, that was subtle rather than overtly racist:

> Um, (.) there are times when you feel, yes you've been discriminated.
>
> Interviewer: Is that by other patients or staff?
>
> Both. (.) But as you might know, as you might know, racial discrimination you can't actually prove, yes there has been discrimination but then you feel yes, like you've been discriminated against.
>
> Have you ever experienced anything overt, like any kind of verbal racial abuse?
>
> Oh yes, with patients I get the general 'Paki' abuse, those sorts of words they use. There are times you know. But I think at my age I tend to understand that perhaps that person isn't right in the mind. (C13)
>
> Interviewer: Have you personally experienced or witnessed any racism on the ward at all?
>
> Me. I've felt it. I've felt inequality. I felt that. I felt racism.
>
> Has that been from staff members?
>
> Yes.
>
> It has. What sort of forms did that take, was it subtle or obvious?
>
> Very subtle. I can do the covert and the overt. I've been there and I've done that. (C26)

Fifteen respondents commented that they had witnessed racism between other patients, or between staff and patients, or felt that there was racial tension on the ward, as the following quotations illustrate:

> Interviewer: What would you say is your biggest worry?
>
> Racism on the ward, I sometimes feel it. Combat racism on this ward. (N3)
>
> Interviewer: Have you personally experienced or witnessed racism on the wards at all?
>
> Yes.
>
> What form did it take?
>
> A white man called a black man a 'black bastard'. Yes it was about a week ago. I told a member of staff who was on the ward and he sorted it out.
>
> How do you feel when you witness racism?

It's not very helpful. (S8)

In the quotation from respondent S8, staff dealt with the racism that occurred. Another respondent described how patients were intolerant of racism and tried to stop it:

There was a guy, I'm not sure whether it was done for a wind-up or whether it was done really from a racist point of view but they kept writing NF all over this guy's wardrobe and leaving notes in his bed and things like that. That was squashed very quickly by other patients. (C38)

In conclusion to this section, a third of all respondents either witnessed or experienced racism occurring on the wards. Much of it was subtle rather than overt, and most of the racial abuse was verbal. But respondents did give examples of staff and patients acting to stop the racism from occurring.

6.4.9 Staff: safety and security

It has already been discussed at the beginning of the chapter that overall, both positive and negative feelings were expressed about the staff. Many patients talked about staff as being helpful to them, with other patients making more negative comments. In this section, the focus will be on whether patients thought that staff on the wards helped them feel safe. Respondents were asked if staff were available to protect them and keep them safe. Thirty-seven respondents agreed with this, saying that staff were around and that that was reassuring, that staff were approachable and would step in and intervene if there were arguments or other types of conflict, as the following quotations illustrate:

Interviewer: Are the staff available to protect you and keep you safe?

Yes.

How do they do that?

One night I had a problem, there was this patient who was up and down all night long. I had problem because it was disturbing my sleep and I was on my guard all the time. I had a word with the night staff, the next night, (.) I wanted them to keep and eye on him and they did. They reassured me. (N12)

Interviewer: Do you feel that they're available to protect you and keep you safe?

Yes, yes.

How do they do that?

If I have somebody who speaks to me abusive, there will be somebody to speak for me. (N18)

Respondents were then asked if there were particular staff that made them feel safer, and what it was about them, in terms of what they did differently, that inspired this feeling of greater safety. Thirty-eight respondents said that some staff made them feel more safe than others, either naming particular nurses or saying that all the nurses made them feel safe, with many descriptions about the nurses that made them feel safer, including: friendly, helpful, they help straightaway, easy to approach and talk to, will listen, more empathetic, caring and reassuring. Many of these respondents talked about how staff helped them feel safer within themselves and at times of particular distress, rather than particularly from other patients, as these quotations demonstrate:

> Interviewer: Are there any staff that make you feel more safe when they come on duty?
>
> I've got a key nurse who is particularly helpful. (.) Urm, (….) I've been incredibly ill over the summer I think I've bored some of the staff possibly because I've gone on and on about it, and I think that's slightly understandable really. This person I'm talking about is particularly helpful in that respect and no matter how I went on about my problems I was having he was always prepared to listen. (S9)
>
> Interviewer: Are there any staff that make you feel more safe when they come on duty?
>
> There's two particular people I get on really well with and that's Peter and Paul (names changed). I had a bath last night and I was hearing my voices telling me to drown myself so Peter sat down outside the door and was asking if I was all right.
>
> So he was talking to you through that.
>
> Yes, I felt really safe then, yes. (C29)

However, ten respondents said that the staff didn't make them feel safe, saying either there weren't enough staff around to deal with situations, or they had lost confidence in them, as the following quotations illustrate:

> Interviewer: Do you feel generally that the staff are available to protect the patients and keep them safe?
>
> No because they have to come from other wards. (.) If something kicked off here now, the buzzers went, there would be a load of women running. If it was two burley men having a fight what have four or five women got a chance of breaking that fight up? Then the alarms are goin', driving everybody crazy. You've got men running from anywhere. But by that time somebody could be badly hurt. (.) So, no, the safety on here is shocking.
>
> Do you think that's to do with the level of staff then?
>
> Yes they're short staffed. It's the level of staff cause one day somebody will get badly hurt in here. (C7)

> I've lost all confidence. I said the nurses are supposed to be carers, they don't. They're supposed to care and they're suppose to have an idea what our needs are and our needs are supposed to paramount and none of them do. (C26)

How staff deal with conflict

In general, staff were perceived as being quick to intervene when they saw conflict brewing or were asked to intervene by patients. Twelve respondents talked positively about how staff sorted out problems with particular patients or situations, as the following quotations demonstrate:

> Interviewer: Have you ever seen any situations like that, that the staff have had to handle?
>
> Um, well there's been fights and there's been people making unnecessary noise or banging on the tables, things like that, but they do handle it well and I do feel safe. (S15)
>
> I mean a few weeks back we had this Indian boy, reckoned he hadn't got any money and didn't know where he came from, all this that and the other, anyway he sat in the ward and he threatened me to give him cigarettes, if I didn't give him any he would hit me. I told the nurses and they sorted it out. I think the nurses are wonderful the way they can handle people. If people are violent or upset or whatever's wrong with you they can handle it. (C16)

However, there were ten respondents who reported that staff were sometimes aggressive towards patients, either verbally or physically, or behaved in a way that respondents perceived as being intimidating, as the following quotations show:

> If you have a staff member that's a bit too (pause) dictative. (pause) For example, the other night, me and another patient were down by the snooker part. There was a bedroom there and that patient was on the chair who was talking, another patient was talking and laughing a bit loud. The member of staff came in and said 'go to your room or quieten down'. He was still talking loud so in the end the staff member (pause) just pulled him up, dragged him along the corridor and said to co-operate. But the way it happened, I didn't like the way it happened, I don't think he should have done it so fast. He shouldn't have forced him. He came back later to me and he said 'if you're going to stare you can stay here but you have to be quiet'. In other words I thought that if I wasn't quiet he would do the same thing to me. I felt intimated. He was very intimidating. I thought he was very out of order. (S2)
>
> One night when I was having a shower, because I have epilepsy I don't lock the shower room door, now the majority of staff (.) always knock before they come in, he didn't knock that night. He came right up to my face and said, 'are you going to behave yourself tonight? Or I've got a nice little cell waiting for you' (Pause) I found that very intimidating. (N12)

Nine respondents talked about incidents when either they were restrained, or they witnessed other patients being restrained, often for the administration of medication. In these incidences the staff were described as being too forceful, or even violent, as the following quotations illustrate:

> I was bought here in handcuffs, dragged through the ward, pinned down by numerous nurses, thrown on my bed with my son in my ears saying 'mom, mom, please, please' It's so distressful. My pants pulled down and injected twice and I didn't understand why because I didn't (…) I was forced medication twice in my bum. Ripped my pants down and injected me. Humiliation. Devastation. Confusing. (C26)

> Is there anything that happens on the ward that causes you anxiety that you feel the staff don't know about?

> That they don't know about? Yes when they pin somebody down and inject them or drag them away.

> And that worries you does it?

> It doesn't worry me I think it's disgusting, there's no need for it. Yes, I don't think there's any need for it. (C33)

In summary to this section about the staff, almost two thirds of the respondents thought the staff protected them on the wards and kept them safe. Some patients thought staff dealt with conflict well, but others gave examples of staff intimidating patients or behaving in an aggressive way towards them. Giving medication to patients who don't want to take it was perceived as particularly violent and aggressive.

6.4.10 Treatment

Twenty one respondents commented that they had concerns about their treatment, including: frequent changes of medication; being forced to take medication; not having choice about which medication to take; side-effects of medication; rarely seeing consultants; and the unavailability of talking therapies. Some felt unsafe when they did not know what they were taking or what the consequences might be:

> I think it's frightening any time that you're going to have to take chemicals that are going to alter your state of mind…. A lot of the time, you don't know what you're on. And sometimes you can ask the nurses and they seem annoyed that you want to know what you're on. (S37)

Only fourteen respondents said that their experience of treatment was wholly positive, namely that all treatments provided were appropriate and brought about the desired results.

6.4.11 Leaving Hospital

Despite some criticism of the wards, over half of the respondents (32) said that they would miss the ward when they left, especially the staff, other patients and having people around to talk to. Some patients said they would miss the routine and having regular meals. Being able to talk to staff with expertise and having their support were considered a great privilege at a time when respondents were vulnerable and unable to support themselves:

> I wanted to ask a few questions this morning and there was a member of staff there. It's not as if, like to say, when I go out that I can ask my family or anyone at work, but I can ask a member of staff. I do think that if I am going to miss anything, it will be having on hand expert advice. (C42)

Respondents' next regret was missing other patients. Camaraderie, empathy, support and friendliness were words used to describe the companionship experienced on the ward. Being part of a group of people who shared much in common created a sense of belonging that few respondents had experienced elsewhere:

> I am going to miss (long pause), yes, being part of something, you know. The fact that even if you're not in the mood to take part in what's going on in the ward, that there's still people there. (C38)

For some respondents, discharge meant returning to a life of loneliness, especially if they didn't have family and friends at home to return to:

> When I go back home to my flat, I will be by myself most of the time and I like the company of other patients on the ward. I don't have that many friends. (S17)

Four respondents would miss the ward because they felt safe there, and were frightened about leaving, concerned that they might not cope outside of hospital:

> It's just frightening going back out there. How can I put it? (Pause) I've gone well in here (.) I feel safe in here. I got sick out there. I have to go back out there and I could end up getting sick again, but I'll try not to. Just this fear of going back out there, knowing what's out there. For me I just need to keep myself safe. The staff here have kept me safe and got me well. (S2)

However, eighteen respondents said they would miss nothing about the ward. They felt they should not have been there in the first place, as the following quotation shows:

> No, it will be great. (Pause) Once I'm out of here I won't think about this place or nothing. If I did think about it I would get more depressed and I'd fuckin' come back here. (C12)

6.4.12 Worries about home whilst being on the ward

Twenty five respondents said that they had not worried about home during their time in hospital. This was because there were other members of their family living at home, or relatives had moved in specifically to care for pets and take care of things, or there were friends keeping an eye on the house. Twenty-three respondents expressed some concern about whether the house was secure and how their bills would be paid. Others worried about how their families were managing without them and some, who lived alone, worried about whether their belongings would become musty. Others were concerned about what would happen if their landlords found out they had been in a psychiatric hospital and whether they would be asked to leave. Eight respondents stated they were homeless and had no definite place to go when discharged. However, most said that staff were helping them:

> I haven't got a home, I'm homeless.
>
> Is that something that you're worried about, sorting out accommodation for when you leave here?
>
> Yes, yes.
>
> Are the staff helping you to do that?
>
> Social Worker is supposed to be helping.

Finally, respondents were asked to identify any problems they anticipated on being discharged. Approximately half (29) said they anticipated none. Concerns mentioned by twenty-eight others included disengaging from the ward environment and adjusting to life after discharge; reassuming responsibility for children; rebuilding their lives; the lack of aftercare services and the possibility of relapse; having to wait for counselling services; being hassled by mental health service personnel, and having to move accommodation.

7 Discussion and conclusions

7.1 Multilevel models of self-harm

Data was collected from 136 acute psychiatric wards, covering the types of patients admitted, the service context, the physical environment, ward routines, rates of conflict (aggression, rule breaking, substance/alcohol use, absconding and medication refusal), containment, staff characteristics and staff attitude/group factors. These variables were then related to the rates of self-harm on those wards using multilevel modelling, a statistical technique that gives accurate estimates of associations where data is hierarchically ordered, e.g. wards within NHS Trusts.

No relationship was found between constant special observation, with or without engagement, and rates of self-harm. However, intermittent observation was inversely correlated with self-harm rates. That inverse correlation persisted in both the subsidiary models, examining minor and moderate to severe self-harm, and in all analyses assessing sensitivity to missing data. The absence of a positive correlation between self-harm and constant special observation is surprising, as self-harm or suicide risk is the most commonly cited reason for the use of constant special observation (Bowers, Gournay and Duffy, 2000). However, there was considerable variation between wards in the use of this containment method, with some wards hardly using it at all, whilst other wards use it a great deal. Some of this variability may be as a consequence of recent critiques of the practice by leading psychiatric nurses, some of whom have recommended that it not be used at all (Bowles and Dodds, 2001). This variability may have obscured a latent association with self-harm. Alternatively, the relationship between constant observation and self-harm may be bi-directional, with self-harm leading to constant observation, and constant observation in turn reducing self-harm. Such bi-directional effects would obscure relationships in our cross-sectional modelling exercise. Nevertheless, these results do not support the efficacy of constant special observation in the same way as intermittent observation is supported.

Little has been written about the use of intermittent special observation. One source (Richmond *et al*, 1991) reports its successful use to reduce absconding rates, and another describes how constant special observation can be reduced by instituting documented intermittent checks on all patients (Moran, 1979). In a study of student psychiatric nurses, Bowers, Simpson and Alexander *et al* (2005b) reported an association between approval of intermittent observation as a containment method, and positive attitudes to patients. However, interviewed nurses in one study criticised it as being ineffective (Clark *et al*, 1999), and the National Confidential Inquiry into Homicides and Suicides has recommended that alternatives be developed (Department of Health, 1999a). The findings of this study suggest that the use of intermittent observation may be an effective way to reduce self-harm. It would seem that this method of containment might be highly acceptable and reassuring to patients, without being intrusive. It ensures the regular presence of nurses all over the ward, and might provide opportunities for patient initiated interaction at moments of distress or dysphoria. The inverse correlation is not likely to have arisen as a consequence of self-harm. If anything, the occurrence of self-harm on a ward is likely to induce the nurses to use more, rather than less, observation. It could be that there is some intervening variable accounting for this link, although a wide range of potential candidate variables have been accounted for in our modelling exercise. As the study design is correlational, no firm causal conclusion can be drawn.

The findings do not support the idea that staff attitudes or group factors have any impact upon self-harm rates on acute wards. Previous evidence had suggested that positive attitudes towards patients and the provision of an effective structure of rules and routines acted to reduce self-harm and other patient conflict behaviours (Bowers, 2002; Morgan and Priest, 1991). Except in two regards, these ideas were not confirmed by the data. In this study, no relationship was found between staff attitudes, group functioning and self-harm rates. Self-harm did not significantly differ on wards where staff had particularly positive or negative attitudes to personality disorder. The general morale of teams, the calibre and efficacy of their leadership, the functioning of their teams, nor their order, clarity or control over the ward atmosphere appeared to exert any effect over rates of self-harm. However, the influence of staff functioning over rates of self-harm was supported by the finding that the availability of qualified nurses was associated with reduced self-harm rates, and the presence of student nurses or unqualified nurses with the reverse. These findings may suggest that there is an element of skilled interpersonal help that may have an impact on reducing self-harm. Similar effects of a skilled nursing workforce have been found in general hospital settings in the US (Needleman, 2002). However, the variance partitioning exercise indicated different levels of impact for different staffing variables, possibly indicating that other latent unmeasured variables may underlie these effects. In addition, the provision of patient activity sessions was strongly associated with lower levels of more severe self-harm, suggesting that an effective structure of routine for patients has a preventive effect.

The features of admissions that raise the rates of self-harm on wards include youth and non-schizophrenia diagnoses. This does not necessarily mean that it was the patients with these features, singularly or collectively, that self-harmed. It could equally well have been the impact of higher numbers of such patients on others and the ward atmosphere that triggered others to self-harm. Larger numbers of people without schizophrenia probably indicates higher numbers with affective disorders of various types, also with known associations with suicide and self-harm. The lack of an association of self-harm rates with numbers admitted for risk of harm to self is initially curious. However, 61% of all admissions were indicated as coming into hospital because of this risk, and it would appear that (a) the level of identified risk is so much higher than the frequency of the actual event that there is little association, and (b) staff also identified those who were a risk to themselves through cognitive disorganisation and self neglect, thus reducing the predictive value of this variable.

The association of high proportions of Caribbean admissions and rates of self-harm is interesting, especially given the strength of the association. However, our sensitivity analysis around missing data on admissions indicates that some caution is called for with regard to the specific association with Caribbean ethnicity and self-harm, as this may simply represent a wider association between ethnic minority status and self-harm. In the univariate ward level analysis, higher proportions of admissions of all ethnic minority categories were associated with raised rates of self-harm. There is a well-known association between Caribbean ethnicity and compulsory admission with a diagnosis of schizophrenia. Many explanations have been advanced for this, including racist practice, misdiagnosis due to cultural misunderstanding, or different ways in which Caribbean patients access services in the UK. Recent work suggests that, although there are raised rates of schizophrenia in the Caribbean community, these are associated with unstable family backgrounds, and that Caribbean patients with schizophrenia have a greater number of affective symptoms (Murray, 2006). This link to affective symptomatology may explain the association with self-harm found in this study. The National Confidential Inquiry has reported that the largest group of ethnic minority suicides were Asian, followed by Caribbean and African patients. However, Black Caribbean suicides were younger and had higher rates of unemployment, schizophrenia, violent behaviour and previous drug use (Department of Health, 2001). A connection with drug use has also been reported by Borrill *et al* (2003), however a community survey has indicated that overall the Caribbean community has low rates of suicide (Neeleman *et al*, 1997). In contrast, others have found higher rates of bipolar affective disorder in black and ethnic minority groups (Lloyd *et al,* 2005). The relationship between ethnicity and self-harm is obviously complex. This confusing array of findings calls for more detailed research.

The Index of Multiple Deprivation for the localities from which patients were drawn was found to be inversely associated with self-harm, indicating that wards serving localities with lower levels of deprivation experience higher rates of self-harm. This cannot be accounted for by such wards admitting fewer patients with schizophrenia and more with other diagnoses, as this factor is already taken into account in the model. It may be that it is the nature of the non-schizophrenic admissions that varies independently, and that perhaps wards that admit more people with borderline personality disorder have higher rates of self-harm. However, it is notable that this association is not present for more severe self-harm, suggesting that, whatever the cause, it selectively applies to minor self-harm. Previous research demonstrates positive associations between suicide and deprivation (Gunnell *et al,* 1995; Rehkopf and Buka, 2006; Whitley *et al,* 1999) and between self-harm and deprivation (Gunnell *et al,* 1995; Hawton *et al,* 2001). However, all these studies are of community populations rather than patients admitted with a mental illness. One previous study in Denmark showed that for admitted patients, there was a direct positive relationship between income and suicide (Agerbo *et al,* 2001). The similar finding in this study may be due to service organisation factors, for example it is known that different districts vary tenfold in the numbers of people who are admitted to psychiatric care following a self-harm incident (Bennewith *et al,* 2004).

The sheer volume of admissions to a ward, or its throughput, seems to have a negative impact, stimulating increased incidents of self-harm. This effect has been previously reported (Bowers *et al,* in press) in a longitudinal analysis of admissions and adverse incidents. Some of this impact is likely to be due to new admissions arriving on the ward in a highly disturbed and acutely ill condition, and self-harming within the same shift. However, the intensity of ward throughput may also have an independent impact, although in one of our sensitivity analyses this association was not present. One possible interpretation is that new admissions might make the ward less predictable for existing patients, heighten anxiety, and precipitate self-harm by others. This effect was most marked for minor self-harm, and more attenuated or absent for more severe self-harm.

The associations found between self-harm and other conflict behaviours are not all easily explicable. The link with absconding might be indicative of patients leaving the ward and self-harming, and the link of more severe self-harm with aggression to objects might reflect the utilisation of objects in the act, for example a patient putting a fist through a window. The association with aggression to others may reflect a tie between inwardly and outwardly directed aggression by the same patients (Department of Health, 2001), or it may mean that aggressive behaviour within the ward heightens anxiety and other emotions within the ward community, stimulating self-harm. The link with aggression to others has also been reported in the aforementioned longitudinal study (Bowers *et al*, in press). The association with refusal to see workers may suggest that patients withdraw from interaction, activities and staff prior to self-harming.

The relationship between self-harm and special observation has already been addressed, however there were also associations with other containment methods. The positive association with PRN medication and manual restraint may simply represent the immediate consequences of such incidents on the ward. If patients do not desist, then they are restrained from harming themselves, and in an endeavour to calm their dysphoria, extra medication may be offered. However, it is also possible that there is an effect in the other direction, with wards using high levels of PRN medication and high levels of restraint creating an atmosphere that releases self-harm by patients – an explanation that is somewhat supported by the link between self-harm and aggression to others. In this correlational study, the direction of causality cannot be established. This also applies to the locking of the ward door, which may have been a consequence or an antecedent of self-harm. However, 49 (36%) of the wards were permanently locked, and at the ward level these wards had higher rates of self-harm ($t = 1.95$, $df = 134$, $p = 0.005$), suggesting that any causal effect may be bi-directional. If locking the ward door does lead to increases in self-harm, this appears to be limited to more minor self-harm, as the association intensifies in the minor self-harm model, and disappears in the moderate self-harm model. Strikingly, many of the other common security practices of acute psychiatry, such as the banning of harmful items, searches of patient property, and restrictions on patient activities or access to kitchen or bathing facilities appeared to have no association with self-harm rates.

There is considerable scope for further analysis of the dataset. Different types of conflict and containment could be explored as dependent variables in additional multilevel modelling exercises. In addition, if distributional problems could be overcome, it may be possible to use Structural Equation Modelling to further explore the relationships among variables, particularly the different forms of observation and self-harm. Finally, as some wards submitted comprehensive shift report returns covering six-month periods, these could be examined using Time Series analysis, to elicit temporal relationships.

7.2 A typology of wards

Two statistical techniques were used to uncover whether there was an underlying typology of wards with respect to conflict and containment levels. For example, whether there was a category of wards that were particularly aggressive and another category that were particularly high in their use of containment. The statistical techniques used were cluster and factor analysis. Both were used as exploratory methods, rather than to confirm any previously devised hypotheses.

Neither the factor analysis nor the cluster analysis were fully satisfactory. Although the cluster analysis did identify statistically robust categories, these were not well related to other variables, suggesting that they were not very meaningful, and may have reflected geographical variation. On the other hand, the factor analysis resulted in meaningful dimensions which were highly related to other variables in a way that made good sense. However, the choice of the five-factor solution was made on the basis of interpretability, rather than robust statistical grounds. This being said, the dimensional approach provided by the factor analysis does seem to fit the data better, and provide more fertile territory for theoretical reflection. Nevertheless, the interpretation of the lower order factors requires some caution. These were particularly unstable if more factors were allowed into the analysis. It certainly cannot be deduced from factor five that special observation reduces self-harm. We present other analyses elsewhere that represent a far more rigorous test of that association. The relationship between the cluster and factor analyses did demonstrate that both tapped some of the same underlying patterns in the data.

Both forms of analysis showed strong relationships with NHS Trust, and to a lesser degree with research centre or region. This suggests that geographical or organisational variables are important in the determination of conflict and containment rates on wards, and validates the multilevel modelling approach to analysis we have taken elsewhere. This conclusion is further supported by the association of deprivation and social fragmentation indices with some of the factors.

Both forms of analysis also demonstrate a separation between security policies, e.g. banned items, searching, restrictions etc., and more specific containment measures, e.g. PRN medication, manual restraint, special observation etc.. Wards that are high users of one are not necessarily high users of the other. Moreover, the use of security policies does not seem to be associated with higher or lower rates of conflict, suggesting that these may have little impact on daily ward conflict events, or are little influenced by those events. It may be that such links are local and specific to individual units. For example, it is possible there are localised forms of self-harm that patients copy from one another, so that in those areas bans of specific items might have an effect, whereas the overall level of such bans does not. Many of the more specific containment methods are associated with conflict, suggesting close causal links, although the direction of these cannot be deduced from this analysis.

The separation of security policies into two different factors is of interest. A survey of London wards (Bowers, Alexander, Callaghan *et al,* 2002) found two groupings: (a) banned items, restrictions and door security, and (b) searches, guards and alarms. This pattern is partially reproduced in the factor analysis presented here, with searches and alarms falling into factor four, and bans, restrictions and door security falling to factor three. However, the fit is not perfect, as searches also fall into factor three, and guards do not appear in any factor. The explanation for these patterns is not obvious. Bowers, Alexander, Callaghan *et al* (2002) suggested that they related to different organisational preoccupations, either with harm to self in the case of (a), and harm to others in the case of (b). While this might still be the case, it is clear from both the factor and cluster analyses that there is no strong and obvious link to actual rates of adverse events.

The link between drug and alcohol abuse and absconding in factor two is of note, and suggests that patients abscond in order to acquire or consume these contraband items. Alternatively the wards scoring high on this factor may simply be those that regularly admit patients for detoxification. A previous study did not identify substance consumption as a reason for absconding (Bowers *et al,* 1999), although it was noted that 11% of absconders smoked cannabis while away from the ward, and 19% drank alcohol. A further study of London inpatients also found a link between absconding and drug/alcohol use (Bowers, Simpson and Alexander, 2003), although this link was not reproduced in samples from Italy and Greece (Bowers and Douzenis *et al,* 2005). The presence of seclusion in this factor may indicate that this is used in the management of the highly intoxicated patient. However, the widespread belief that substance misuse is associated with aggression and violence is not supported by this data, as these items do not load on this factor at all. A similar lack of connection between drug/alcohol use and inpatient aggression was also reported in Bowers, Simpson and Alexander (2003) and Bowers and Douzenis *et al* (2005).

Cluster two, representing 39 wards with low rates of conflict and containment, is of some interest. These low rates do not appear to be fully accounted for by patient, staff or environment factors, and this may indicate that the explanation for their success lies elsewhere.

It has been argued elsewhere that there is theoretical and practical utility in treating all conflict together (Bowers, 2006). This receives some support from the cluster and the factor analysis, in that factor one and cluster three encompass most conflict items. However, there are also indications that the frequency of self-harm on wards varies in a different way, and may therefore be influenced by different variables from the main mass of conflict that incorporates aggression, rule breaking and medication refusal. The emergence of absconding in substance use in factor two, and the failure of absconding to identify with any cluster, may indicate something similar separating, to some degree, these patient behaviours from others. These findings validate the collective concept of 'conflict', its utility for research and analysis, and raise the possibility that interventions may be found that reduce conflict as a whole, across the spectrum of different behaviours. However, the findings also support the utility of a separate, more fine-grained treatment of individual conflict behaviours, especially self-harm.

7.3 Views on containment measures

More than a thousand staff and a thousand patients were surveyed for their views on different types of containment, ranging from the use of extra sedating medication through to mechanical restraint. This represents the largest and most systematic survey of its type ever to take place.

The survey has established a robust set of benchmark values with regard to how inpatients and mental health staff in England view various more-or-less controversial containment measures. These norms can be used as a platform for further work in which the views of other groups of staff in both the UK and internationally can be compared. They could also be used pre-post in evaluation studies in which attitudinal change is considered desirable.

This large sample covering three regions of England is superior to previous published ACMQ data in this country, utilising a sample of just over a hundred student nurses at one University (Bowers, Simpson and Alexander *et al,* 2004). However, in that study the relative order of approval of containment methods was slightly different when compared to the staff group in this study, in that PRN medication was the most approved method by students, and open area seclusion had a higher ranking. The students' ranking of methods was closer to that of the patient sample in this study, as were their overall approval scores.

Only one previous study has quantified and compared staff and patient views of different containment methods (Harris *et al,* 1989). Their sample was a purposive one, drawn at a maximum security psychiatric hospital in Canada and consisted of 40 patients (20 who had been violent and contained in the past year and 20 who had not) and 38 staff (19 of whom had used containment methods and 19 who had not). In addition to the non-generalisable sample, instead of presenting different containment methods separately for rating, the questionnaire which was used presented them hierarchically and in an overlapping fashion, making interpretation difficult. Their results showed that patients approved of PRN medication and time out much more than staff, that staff approved of seclusion, manual restraint and coerced IM medication much more than patients, and that both groups disapproved greatly of mechanical restraint, which was not used in the study institution. The technique most preferred by patients was PRN medication, matching the findings of this study if the same range of containment measures is considered. However, staff showed the greatest approval rating for seclusion, in stark contrast to the staff in this study, whose order of preferences broadly matched those of patients, a difference which may be in part due to the different settings of the two studies. Staff and patients disapproved equally of mechanical restraint, matching the findings of this study.

Another study, also based in a maximum security hospital, this time in California, surveyed 109 multidisciplinary staff on their relative evaluations of medication, seclusion and mechanical restraint (Klinge, 1994). Their order of preference was exactly that, medication was most preferred, followed by seclusion, then mechanical restraint. In Klinge's study, no distinction was drawn between consensual PRN medication and coerced IM medication, complicating comparisons with our results. For English staff, but not patients, seclusion was preferable to coerced IM medication. However, there was again agreement between Klinge (1994) and this study, in that mechanical restraint was the most disapproved containment method. Klinge's questionnaire was used by Terpstra *et al* (2001) with a sample of 65 qualified and unqualified nurses working in a neuropsychiatric hospital in the USA, with precisely the same results.

Some significant findings are worth highlighting. There is evidence of strong disapproval amongst both staff and patients with regard to the introduction of mechanical restraint. Attitudes toward other existing measures did not differ hugely between the two groups, although overall patients tended to be more disapproving than staff. The staff responses varied according to age, with older staff tending to disapprove more strongly of net beds and mechanical restraint. This age effect may reflect a generation change in which 'old-fashioned' prejudices against an apparently legitimate technique are being shed or may result from a lack of exposure to concrete examples of use in the real world.

There was a greater approval of containment methods by men, whether they be staff or patients, a finding that confirms a previous international study using the same instrument (Bowers and van der Werf *et al,* 2006). This indicates the importance of gender roles, perceptions and identity in this area. The UK is fairly unique in having a mixed gender qualified nursing workforce in psychiatry. The gender effect could reflect any of a large number of more general hypothesised gender-related differences, e.g. empathy, emotional intelligence. It could be that a more female dominated nursing workforce would result in less containment use. However, in other countries where female nursing staff predominate, this has led to the harsher containment measures being implemented by male security guards or by unqualified male nursing aides (Morrison, 1990; Morrison *et al,* 2002), ultimately resulting in much higher levels of use.

Personal experience and geographical region were associated with some heterogeneity in the patient group. There seems to be a tendency for exposure to 'gentler' measures, e.g. observation, to enhance approval and conversely, for exposure to 'harsher' measures, e.g. IM medication, to lead to stronger rejection of the measure. Staff reported quite a consistent tendency to approve of techniques once they had employed them in their practice which may reflect a process of attitudinal adjustment in which the person justifies the measure to themselves afterwards to avoid unpleasant feelings of cognitive dissonance. Geographical variations within both groups were complex and require further examination but it is clear that they do exist in terms of some of the measures studies here.

7.4 The cost of conflict and containment

The cost of staff time invested in dealing with conflict behaviours, and providing containment measures, was assessed through interviews of experienced staff, who were asked to describe typical incidents of various types.

The combined costs of dealing with self-harm and the subsequent related containment procedures of intermittent and special observation amount to £90.1 million worth of resources being used by acute adult inpatient wards in England. These are conservative estimates, because they deal mainly with staff time and do not consider wider costs associated with conflict and containment, management of violence, managing challenging behaviour, staff training and staff injuries. If such conflict and containment behaviour could be reduced this would release resources for other areas of mental health or health care generally. For London alone, with its 122 acute adult inpatient wards, there are huge cost implications.

The National Institute of Clinical Excellence (NICE, 2005b) cites a figure for the national cost of violence in Mental Health Trusts of £30 million per year. This exceeds our calculated estimate of £18 million. However, the NICE figure is based upon time taken off sick, which is not included in our costing exercise, and relates to the whole of the Mental Health services, not just acute psychiatric wards. By putting both figures together, thus combining time off sick with staff time spent in management, we can say that the national cost to acute psychiatry alone of violent incidents is likely to exceed £30 million.

NICE (2005b) has also estimated that the annual cost of management of violence training for adult inpatient psychiatric settings is in excess of £12.5 million. Questions then arise as to whether additional hugely expensive training packages, proposed and costed by NICE at £12million, are cost-effective, especially if they are simply adding to the already large cost of conflict and containment. It may also be asked whether these training approaches will reduce what would otherwise be greater rates of verbal abuse, violence and ultimately costs?

This new approach to costing the impact of psychiatric events and establishing opportunity costs provides a useful contribution to methods of obtaining better psychiatric inpatient costs. The alternative of a time and motion study to observe real time events in numerous sites across the country would be very costly, requiring many research staff to remain in a number of clinical areas over a prolonged period of time in order to capture and verify all the necessary observations. Our method is therefore a very inexpensive way of providing data on resource use in this challenging methodological area.

7.5 Patient anxieties and fears

An unfortunate and unintended consequence of the deinstitutionalization of mental health care in the last three decades has been the relegation of acute inpatient care to the margins of mental health services. The development of community mental health services, built largely upon therapeutic, economic and philosophical objections to hospital care, led to great uncertainty about the purpose of contemporary inpatient services and a sense of inferiority and inadequacy in those who provided them. Nurses working in acute care settings perceived themselves to be of lower status than their community colleagues, less well paid, with fewer opportunities for career advancement and confined in an un-stimulating work environment (Priebe and Turner, 2003; Quirk and Lelliot, 2001). The outcome, it has been suggested, has been that less able and less experienced nursing staff have often been placed in charge of the care of the most acutely distressed patients, and acute wards have become high-risk places where violence, restraint and, sometimes, poor quality care are evident (Davenport, 2002; Hammersley, 2004). Some nurses have acknowledged that they were ill-equipped for the work they were being asked to do and that, coupled with under-resourcing, this was likely to be very damaging to patients (Allen and Jones, 2002).

Sixty inpatients were interviewed about their feelings of fear and anxiety, utilising an interview schedule designed by service users in collaboration with the research team. Contrary to the predominantly negative picture frequently painted of acute inpatient facilities (Ehlert and Griffiths, 1996; Higgins *et al,* 1997), these interviews suggest that acute admission wards do provide the majority of patients with safety and security at a time of often deep and frightening crisis, thereby fulfilling their primary purpose (Bowers, Simpson and Alexander *et al,* 2005a). The results seem to be much more positive than previous studies have suggested. The majority of respondents felt safe on the ward, with almost two thirds of respondents saying they felt protected by staff and knew they could call on them if something dangerous or frightening happened on the ward. Perhaps tellingly, over half of those interviewed said they would be sad to leave the ward as they appreciated the comparative security and reassurance of staff and the ward environment. Many would also miss the support, empathy and camaraderie of fellow patients. Those respondents without families or homes to return to were more apprehensive about leaving hospital.

It is notable that most patients viewed the presence of staff as supportive and reassuring. As intermittent observation places staff out on the ward, available to patients and with a visible presence, this might be one means by which it operates to reduce self-harm rates.

Less positively, just over a third of all respondents said that other patients worried them or thought they might be dangerous to them. Ten patients had direct experience of other patients being aggressive towards them, and thought that those patients were dangerous. But some patients were aware that other patients' behaviour was a result of their illness and they were worried about them rather than for themselves. Respondents talked about having strategies for keeping themselves safe on the ward, such as keeping themselves to themselves and avoiding disruptive patients or situations. These strategies were largely the same as those described by Quirk *et al* (2004).

Just under a half of the interviewees had experienced or witnessed violence or abuse, although this may not have been during their current period of admission. Verbal abuse of patients by other patients, of staff by patients and of patients by staff was mentioned by just under a third of respondents. Nine patients mentioned particularly forceful restraint carried out by staff, either to themselves or others, which were reported to be distressing and like acts of violence.

One aspect not often reported in other studies that did leave patients feeling insecure was thieving on the ward. Over a third of those interviewed had experienced or witnessed theft, which caused a great deal of upset and prevented patients from feeling more relaxed in hospital. A basic step to reduce this, and make patients more relaxed and comfortable, would be to provide patients with lockable cupboards. However, even where these are provided, and some of the interviewed patients did have access to these, it is not always easy for ill patients to remember to secure their property, thus presenting opportunities for intentional or unintentional theft by other disturbed patients. Although patients are warned about bringing valuables into hospital, and usually these are kept secure in a hospital safe if they are brought in, it is the theft of relatively trivial items that is irritating and distressing. Patients cannot be expected to bring nothing into hospital – basic personal items and clothing are absolutely required. Perhaps the best recommendation is that staff should welcome and take seriously any reports of thefts, however apparently trivial in their eyes, and should investigate and attempt to identify the perpetrator and return the items. If a patient is admitted who is known to be prone to thieving, that patient should be more closely observed, and their property, locker and person searched at regular intervals. All patients should be informed at regular intervals that theft is not tolerated, with explanations as to why, that they should keep their belongings secure, and that staff will do what they can to prevent this from occurring.

Similarly, experiencing or witnessing patients being bullied or intimidated caused significant upset. This is also little discussed in previous literature, but clearly has the potential to have a significant adverse impact on vulnerable patients during their admission. There is scope for much more assertive preventive policies by staff in this area, and the bullying of some patients by others is not acceptable. Staff need to be aware of what is happening, be open to reports from victims or witnesses, and to deal effectively with perpetrators when such abuses are uncovered. Trusts should develop anti-bullying policies and deploy educational interventions on this topic to patients while they are in hospital. This could form a useful part of any package of therapeutic activities for patients.

Unlike bullying and thieving, which have received little attention to date, the risk to women on mixed gender wards of being sexual assaulted by other patients has aroused widespread concern (National Patient Safety Agency, 2006). However, our interviews suggest that this is not a major or highly prevalent concern of female patients themselves, with inappropriate sexual behaviour only causing upset to three female patients. That is not to say that this is an unimportant issue, but to properly identify the degree of anxiety this causes to patients.

Whilst the majority had not witnessed any racism, it is perhaps indicative that the five people who described racist incidents were Black or Asian. Racist language and behaviour does occur in acute care settings and it is having distressing consequences on both victims and those who observe it. All Trusts should now have policies on their response to patient racist behaviour (Blofeld *et al,* 2003), but there were too few and sparsely described incidents in our data to tell if this was the case. As with other incidents reported by patients in these interviews, these may have occurred some time ago during previous admissions.

The presence of alcohol and illicit drugs on acute inpatient wards was widespread, with respondents reporting the use of drugs and alcohol by patients and the smuggling of drugs and alcohol onto the wards. Some drug dealing on the wards was also reported. This widespread use of alcohol and drugs on the wards is perhaps not a great surprise, with recent research finding that 89% of inpatients interviewed on acute psychiatric wards in London had used alcohol and/or drugs at least once during an inpatient admission (Phillips and Johnson, 2001). This situation is of great concern for mental health services, with a concern that people who develop mental health problems, particularly schizophrenia, may be introduced to, or continue drug use in mental health service settings or with people they have met in mental health service settings (Phillips and Johnson, 2001). Of further concern from this study, twelve respondents found the use of alcohol and drugs by other patients very distressing, making them feel unsafe and vulnerable. In addition, five respondents talked about being pressured or intimidated by other patients to bring alcohol or drugs onto the wards for them. Useful guidance has recently been issued by the Department of Health (DoH, 2006), and should be followed.

Respondents did not worry about their homes if there were other family members taking care of the house, but over a third reported concerns about the security of their property and about paying their bills. Similar concerns have been reported as reasons why some patients leave wards without agreement and have been included in effective interventions designed to reduce absconding (Bowers, Alexander and Gaskel, 2003).

The provision of a suitable schedule of activities, and the provision of equipment for recreation, was very important to patients, who in their interviews complained vigorously and vividly about the boredom entailed by being on the ward. That boredom is known to motivate some patients to abscond (Bowers *et al,* 1999), and the provision of more activities for patients has been recommended for some time (DoH, 2002a). The multilevel model of moderate self-harm reported in Chapter 3 also highlighted the importance of patient activity sessions, with more activities linked to less self-harm. It is possible that the mechanism by which this operates is via combating feelings of hopelessness, helplessness, alienation from others and anomie. The provision of activities, and the staff and equipment to make them happen on a regular basis, should be a high priority for services.

In considering the more general experiences of patients interviewed, it is apparent that just under a third felt positively about being on an acute ward, another third felt negatively and the remaining third reported mixed feelings about their experience. Feeling positive about being on the ward depended on the respondent's attitude towards admission, the quality of the ward environment, the facilities available, the food, the care provided by staff and the friendship of other patients. Those who experienced their stay negatively resented being admitted and found ward-life restrictive and boring. It would appear that patients who disliked being on the ward tended to avoid other patients and ward activities. Staff who talked to patients, listened to them, reassured the frightened and acted on what they were told were highly appreciated, as opposed to those who took no interest in their work, often said to be temporary or agency workers.

For some respondents, entering the ward was stressful; for others, being there was stressful, while leaving was stressful for others. In addition to having to cope with having a mental health problem, it would appear that some patients also have to cope with the effects of being in a context which induces stress.

7.6 Strengths and limitations

The basic design of multilevel modelling element of this study is correlational. Therefore, although associations between variables have been found and reported, the direction of causality cannot be concluded. There remains the possibility that any associations may be created through other unmeasured variables, either as common causes, or as intervening variables. However, many of these potential additional or intervening variables were incorporated in our modelling exercise from the beginning.

The method used to build the model may have excluded some significant variables as, to qualify for entry in the final model building exercise, variables had to be powerful enough to show an association in the initial model building by group. A corollary of this is that a division of the variables into different groups at the outset may have led to a slightly different model. On the other hand, this method ensured that only those variables with the most powerful associations with self-harm were incorporated into the final model building exercise.

The large number of variables entered in the modelling exercise means that some reported associations may be due to chance. This is least likely for those variables with the highest levels of significance. This weakness is counterbalanced by the overall size of the dataset collected. In addition, the random selection of wards strengthens the external validity of the findings, and the use of multilevel modelling provides more accurate estimates of effects than other methods.

The ideal form of data for this study would have been comprehensive data on patients admitted and occupying the study wards, including rigorous diagnostic information and past patient history, coupled with end of shift reports indicating which patients had engaged in which conflict behaviours, or been subject to which containment measures. However, this is completely impractical on the scale at which this study was conducted, as we were dependent on returns from practitioners whose first responsibility was the care of patients, not research data collection. Collecting this level of detail would have required the completion of a 400 cell matrix at the end of every shift, coupled with large forms returning patient data every time there was an admission. The data collected was therefore a pragmatic compromise.

Despite the size of the dataset collected, there were few incidents of more severe self-harm. Moreover, even to conduct this subsidiary analysis, the criteria for more severe self-harm had to be set at an undesirably low level. As a consequence, the analysis conducted on this was less statistically powerful, and less specific. The failure of some variables to show an association might be due to that diminished power, rather than there being no connection with severe self-harm.

With respect to the typology of wards, although factor analysis proved superior in terms of interpretability, neither factor nor cluster analysis produced mathematically robust structures underlying this dataset. Significant variance was found by NHS Trust for the results of both analyses, suggesting that multilevel modelling is a more productive form of dealing with the data.

The sample of patients and staff who completed the Attitude to Containment measures Questionnaire was large and representative of the three regions, but may not be representative of the whole of England. Staff involvement in the selection of patients could have introduced bias. The analysis presupposes the notion of a stable attitude toward a containment measure which is consistent across situations. However, it is possible that such attitudes are more fluid and inevitably specific incidents will require different types of intervention at different times. Further testing of the instrument especially in relation to test-retest reliability would be beneficial.

The generation of data on costs of conflict and containment by interviews of staff about typical incidents is far from perfect. The recollection of the interviewee, and their ability to synthesise and extrapolate from their past experience of multiple incidents may have led to a degree of inaccuracy. Further investigation is needed into the capacity of interviewees to give accurate estimates. The exclusion of staff time off sick, the effects of consequent low morale, the costs of patient injuries, all detract from the accuracy of the costs we have described. Nevertheless, in the absence of any other rigorously collected figures, these do represent an advance. The provision of alternative information, which would have to be based on real time observation and large samples, would be a very costly exercise. Because no similar studies have been carried out, it is not possible to say how these results compare to those from other research. However, the interview data had good face validity, in particular the high costs of special observation are axiomatic to clinical staff, familiar in deploying this time consuming containment measure on a regular basis.

While every effort was made to standardise the content, structure and process of interviews with patient participants, there was certainly scope for inconsistency and lack of uniformity in the way in which the interview protocols were implemented by the three interviewers working on the study. Following multiple readings of the transcripts, the conclusion was reached that there was no obvious evidence of bias from the interviewers. However, as with any engagement between two human beings, it is possible that individual characteristics of the interviewers could have influenced the responses of participants.

It is noticeable that participants who liked being on the ward, or who were clearly able to see the benefits in terms of their mental and physical health, were likely to speak positively of their experience as an inpatient, while those who resented being admitted were often unable to say anything at all in favour of any aspect of the ward environment or of their relationships with staff. This clearly suggests that participants' responses were biased. However, such bias has to be accepted as a 'given' of any study in which people are asked to describe their feelings about an emotionally-charged event.

Over half the participants had had previous admissions to acute psychiatric facilities, and it was often difficult to tell whether the information they were giving related strictly to their current admission, or whether it was a synthesis of experiences and impressions gained from many admissions. This needs to be borne in mind, especially in relation to accounts of patient and staff violence and sexual harassment where participants' stories could have been several years old. Furthermore, some respondents seemed wary of talking about more sensitive issues, particularly in relation to reporting other patients taking illegal substances or drinking alcohol on the wards, so it would be that there was some under-reporting of incidents.

7.7 Conclusions

The multilevel models suggest that the use of intermittent observation may act to reduce rates of self-harm. However, the findings do not support the efficacy of constant special observation in the same way, whether that is accompanied with engagement or not. Positive associations were found between self-harm and some other containment measures, as well as with locking of the ward door. However, the direction of causality cannot be finally determined using this study design. Locked doors are a contentious issue in UK psychiatry. The potential for a positive link with self-harm rates indicates the need for further research into the acceptability to patients and staff of door locking.

A large proportion of the variance between wards and Trusts in self-harm rates is accounted for by the types of patient admitted, the localities they serve, and the throughput of patients. Of these patient features, the most striking is ethnic minority status, an association not previously reported. The findings do not support a strong role for staff factors in the determination of self-harm rates on wards, and no association was found with leadership, team functioning, attitude to patients, burnout or ward atmosphere. However, the presence of qualified nursing staff and the provision of patient activity sessions were both associated with lower rates of self-harm.

Further analysis of the dataset should be undertaken in order to maximise the return from the investment that the NHS has made in its collection. Such analysis is likely to produce additional findings of high policy relevance.

Wards and Trusts can take three measures that may lead to lower rates of self-harm: increase the use of intermittent special observation; ensure that wards run comprehensive programmes of patient activity sessions; and increase the numbers of qualified nursing staff. It may also be possible to test an intervention of this type using randomised controlled trial methodology. The link between a richer staff mix and lower rates of self-harm is a pointer to the importance of nurse staffing levels and grade mix on acute psychiatric ward. A systematic review of general acute care has shown lower patient mortality with a richer grade mix (Lankshear *et al,* 2005). A similar review of existing evidence on psychiatric nurse staffing levels and outcomes should be conducted.

The current policy drift towards smaller bed numbers and greater patient throughput seems likely to lead to greater levels of self-harm on wards, and may need to be reconsidered. There is a known problem in the interaction between the psychiatric services and ethnic minority communities in the UK, and it is now clear that this extends to rates of self-harm. Further research in these areas is a definite priority.

The typology of wards demonstrates that there are differences between wards emphasising security policies versus those that emphasise the use of more specific containment measures. This suggests that there is no single dimension of conservative or defensive practice. Somewhat similarly, not all conflict behaviours vary together; in particular self-harm rates appear disconnected from rates of outwardly directed aggression and resistance to psychiatric rules and treatment.

Patients and staff were both strongly disapproving of the use of any form of mechanical restraint, although that disapproval was slightly stronger amongst the staff. This result suggests that any endeavour to introduce the use of mechanical restraint into adult acute psychiatry in the UK is likely to meet with significant opposition. From the pattern of results we can also predict that if mechanical restraint was introduced to the UK, staff who used it would approve of it more, however patients subject to it would approve of it even less.

The greater approval of containment methods by male staff, and in the case of the harsher methods their greater involvement in the use of them, raise questions about gender roles within psychiatric nursing. More attention to this aspect of psychiatric care and the issues around it during nurse training might be necessary.

For patients, the most acceptable containment measure was intermittent observation, followed by time out and PRN medication. Ward regimes, based on these methods rather than others, are likely to be better received by patients. The least acceptable methods to patients, excluding those not in use in the UK, were restraint, seclusion and coerced IM medication. For these methods, disapproval increased with experience and their use should therefore be avoided as much as possible.

Improved data on the costs of conflict and containment on acute psychiatric inpatient units has been provided, using a method which had not been previously been used. This report highlights cost components and other cost considerations previously not measured. The data complement the broader picture provided by the results of the City 128 study, from which there is now a greater understanding of conflict and containment events nationally on acute psychiatric wards. Unit costs previously for inpatient psychiatric wards, based on costs per inpatient day, have not taken into account the additional burden of costs created by conflict and containment.

It has to be remembered that conflict and containment events have potential to give rise to other non-financial impacts including investigations, disruption to services, critical inquiries and potential trauma for those involved. Confidence is often undermined and negative images reinforced. There can then be a greater focus on risk assessment, risk management and services that are more coercive (Hobbs, 2001). It also has to be recognised that some of these incidents will occasionally have additional, other costs, e.g. staff sickness, increased patient length of stay. These are important, but are difficult to assess and cost in detail. We acknowledge that those wider costs exist, but our research focussed on staffing costs, bearing in mind that this is ultimately two thirds of all healthcare costs.

Future research could examine quantifying any potential costs avoided as part of an extended intervention to reduce conflict and containment in acute settings and how this might result in both increased utility for staff and users. In addition, it may be interesting to see if variability in resource use could be accounted for or related to any specific diagnosis-related groups or small sub-group of patients.

The interviews suggest that what patients want most from the acute admission ward is a sense of stability and security at a time when they are undergoing a crisis in their lives. Anything that threatens these, such as fighting between residents, raised voices, racism, illegal substances such as alcohol or cannabis being smuggled onto the ward, insufficient staff or the presence of agency staff unknown to the patients, are disliked. Actions on the part of staff that help people to feel safe and happy on the ward, such as clear explanations of the layout and routine of the ward, how long they can expect to be detained, and discussion of their medication and treatment programmes, are warmly appreciated. Such assistance helps patients orientate themselves and minimises the unexpected, so that they feel in control and less vulnerable in what is, at least initially, a hostile and frightening environment.

Many patients found weekends difficult. Weekends would seem an ideal opportunity to involve voluntary sector workers in providing activities to engage patients intellectually and socially, such as running a book-club, a newspaper headlines club, gardening group or music circle. These would help provide the stimulation which is clearly often missing at a time of the week to which most people look forward.

The most irritating of the everyday trials of being on an acute admissions ward appears to be petty thieving. While it is important to encourage patients not to bring anything into hospital that they value highly, or which is valuable, it is generally the everyday items which they *have* to bring in with them, such as toiletries, that are vulnerable. This can, at least partly, be addressed by the provision of lockable wardrobes and cupboards for patients. However, access for staff would need to be maintained in order to prevent hoarding of tablets or other items that might present risks.

It would appear to be a truism that people who resent being admitted to the ward are likely to see every aspect of the environment and of their interaction with staff and patients in a negative light. Conversely, those who feel positive about their stay tend to view things positively. Different nursing strategies may be needed to manage these different groups of patients in the most positive way. Further research is necessary to discover what interventions promote a harmonious and positive stay, particularly for those who resent compulsory admission.

Ironically, the patients who most enjoy being on the ward pay for the sense of security they have enjoyed with a heightened perception of insecurity in relation to their return home. They experience a sense of loss of social support, both from staff and other patients. This 'discharge grief' may account for the high risk of suicide during the immediate post discharge period (Geddes and Juszczak, 1995; Goldacre *et al,* 1993). The need for appropriate discharge arrangements and ongoing support is therefore self-evident, and models of follow-up by ward staff have been tested, with varying results (Forchuk *et al,* 2005; Reynolds *et al,* 2004). Further research is required on interventions to improve patient support and reduce suicide risk at this time.

This study suggests that there is a strong culture of patients helping other patients on acute admission wards. This is presumably therapeutic, both for the helpers and the helped, and as they become more familiar with the ward, the helped may well, in their turn, become the helpers. Such a culture is to be encouraged. Where staff have insufficient time to orientate patients arriving on the ward, other patients could take on this role and would probably enjoy doing so. A buddying system might well be considered as an appropriate therapeutic strategy to maximise the sense of security of new admissions and enhance the self-esteem of those who have been there some time.

7.8 Recommendations

The findings suggest that the use of intermittent observation may act to reduce rates of self-harm, and demonstrate the cost per patient is low and the practice is highly acceptable to patients.

- Trusts should review their special observation policies to ensure that this form of containment is an available option for staff.
- Clinicians on wards where this is used at less than median levels, i.e. less than five patient-shifts per day, should re-evaluate their practice.
- More research should be commissioned on the potential mechanisms that may link intermittent special observation with outcomes.

Comprehensive programmes of patient activity may act to reduce more serious self-harm, and are highly valued by patients.

- Those services without a programme of patient activities should take urgent steps to provide one.
- Those with less than the mean number of patient activity sessions per week (8) should increase the numbers of such sessions.
- Staff, equipment, and space may all need to be provided to make sure any planned programme can be put into effect.

The link between a richer staff mix and lower rates of self-harm is a pointer to the importance of nurse staffing levels and grade mix on acute psychiatric wards. A systematic review of general acute care has shown lower patient mortality with a richer grade mix.

- A similar review of existing evidence on psychiatric nurse staffing levels and outcomes should be conducted.
- Standards for acute inpatient care must include nurse staffing levels and grade mix.

Wards and Trusts can take three measures that may lead to lower rates of self-harm: increase the use of intermittent special observation; ensure that wards run comprehensive programmes of patient activity sessions; and increase the numbers of qualified nursing staff.

- It may be possible to conduct a randomised trial of an intervention incorporating these elements, and the feasibility of doing so should be assessed.

The positive association between self-harm rates and the locking of ward doors is of some concern, as the use of 'closed' wards is increasing.

- Further research should be undertaken into patient responses to, and evaluations of, the locking of the ward door, and to further examine the direction of cause and effect between self-harm and door locking.

There is considerable scope for the further analysis of the dataset collected using additional statistical techniques to explore relationships between observation, self-harm, and other variables.

- In order to maximise the return on the NHS investment in this study, further analysis should be commissioned.

There is a known problem in the interaction between the psychiatric services and ethnic minority communities in the UK, and it is now clear that this extends to rates of self-harm.

- The annual ethnicity census conducted by the Mental Health Act Commission should in future collect additional data on self-harm rates.
- Further research in this area should be commissioned.

Patients and staff were both strongly disapproving of the use of any form of mechanical restraint, although that disapproval was slightly stronger amongst the staff.

- Mechanical restraint should not be introduced into UK psychiatric practice unless overwhelming evidence can be shown for its benefit.

The least acceptable methods to patients, excluding those not in use in the UK, were restraint, seclusion and coerced IM medication. For these methods, disapproval increased with experience, and other patients were very distressed to witness them.

- Use of these methods should be avoided as much as possible.
- When they are used, the other patients on the ward, as well as the patient subject to them, should be debriefed afterwards.

The greater approval of containment methods by male staff and, in the case of the harsher methods, their greater use of them, raise questions about gender roles within the psychiatric professions.

- Gender roles and containment usage should be a topic for consideration and reflection during the training of all psychiatric professions.

The majority of patients felt safe on the ward, because of the staff presence and actions, the support from other patients, and because they had devised strategies to keep clear of any trouble.

- The psychiatric professionals providing acute inpatient care to patients in crisis should be applauded, and their contribution should receive wider recognition and respect.

Patients who denied they have a need to be on the ward saw nothing positive about any aspect of their stay.

- Further research is necessary to discover what interventions promote a harmonious and positive stay for those who resent compulsory admission.
- The results of the currently ongoing EUNOMIA study, when published, should be scrutinised for the wider lessons they might have for acute care.

Inter-patient petty theft on the ward caused considerable anxiety and irritation.

- Lockable secure storage space for each patient should be provided in all wards.
- All patients should be regularly informed that the stealing of others' property is not acceptable, and that when it occurs it should be reported to staff. This message should be incorporated in patient information packs and be placed on ward notice boards.
- Staff should welcome and take seriously any reports of thefts, however apparently trivial in their eyes, and should investigate and attempt to identify the perpetrator and return the items.
- If a patient is admitted who is known to be prone to thieving, that patient should be more closely observed, and their property, locker and person searched at regular intervals.
- Trusts may wish to consider developing a formal policy related to patients' property and thefts.

Being bullied or intimidated, or witnessing this happening to other patients, caused significant upset.

- Staff should be aware of what is happening, be open to reports from victims or witnesses, and to deal effectively with perpetrators when such abuses are uncovered.
- All patients should be regularly informed that bullying and intimidation is not acceptable, and that when it occurs it should be reported to staff. This message should be incorporated in patient information packs and be placed on ward notice boards.
- Trusts should develop anti-bullying policies and deploy educational interventions on this topic to patients while they are in hospital.

The use of drugs and/or alcohol interferes with effective treatment and distresses follow patients, generating a sense of insecurity and a feeling that staff are not in control.

- Any anti-bullying policies and actions as detailed above should incorporate a strand specifically relating to the funding, importation or holding of drugs and/or alcohol.
- Recent guidance issued by the Department of Health should be scrutinised and followed (DoH, 2006).

There is a considerable degree of inter-patient support that is highly valued. Facilitating and consolidating this support is likely to be beneficial and reduce risks. The sudden removal of the warm, supportive community of patients on discharge may contribute to suicide risk.

- A range of different interventions are possible to blur the boundary between in- and outpatient care around the time of discharge, and further evaluative research in this area should be commissioned.
- Ways to enhance and consolidate inter-patient support should be devised, implemented and evaluated.

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Appendix 1 The patient- staff conflict checklist shift report (PCC-SR)

CITY1

Patient-staff Conflict - shift report

Please complete in blue or black biro. Keep text in the boxes. Tick the boxes that apply. If you make a mistake, cross it out and tick the correct box. Please answer all the questions about admissions if possible. Please write the post codes as clearly as you can. If the information is not known about an admission, leave the question blank. Please complete both sides of this questionnaire carefully and accurately at the end of each shift. THANK YOU from the City 128 research team.

Q1 Date (dd/mm/yy, e.g. 25/12/04)

Q2 Shift

AM ☐ *PM* ☐ *Night* ☐

Q3 Number of staff at start of shift

	0	1	2	3	4	5
Qualified	☐	☐	☐	☐	☐	☐
Unqualified	☐	☐	☐	☐	☐	☐
Bank/agency qual	☐	☐	☐	☐	☐	☐
Bank/agency unqual	☐	☐	☐	☐	☐	☐
Student nurses	☐	☐	☐	☐	☐	☐

Q4 Main ward door locked to patients leaving?

Not at all... ☐ *Less than 1 hour.....* ☐ *1 - 3 hours* ☐
More than 3 hours..... ☐ *Whole shift.....* ☐

Q5 What do you perceive to be Admission 1's ethnicity?

White..... ☐ *Irish.....* ☐ *Caribbean..* ☐
African..... ☐ *S. Asian.....* ☐ *Other.....* ☐

Q6 Is Admission 1 .....

	Yes	No
Male?	☐	☐
Diagnosis schizophrenia?	☐	☐
35 years old or younger?	☐	☐
Sectioned?	☐	☐
Admitted for risk of harm to self?	☐	☐
Admitted for risk of harm to others?	☐	☐

Postcode

Q7 What do you perceive to be Admission 2's ethnicity?

White..... ☐ *Irish.....* ☐ *Caribbean..* ☐
African..... ☐ *S. Asian.....* ☐ *Other.....* ☐

Q8 Is Admission 2 .....

	Yes	No
Male?	☐	☐
Diagnosis schizophrenia?	☐	☐
35 years old or younger?	☐	☐
Sectioned?	☐	☐
Admitted for risk of harm to self?	☐	☐
Admitted for risk of harm to others?	☐	☐

Postcode

Q9 What do you perceive to be Admission 3's ethnicity?

White..... ☐ *Irish.....* ☐ *Caribbean..* ☐
African..... ☐ *S. Asian.....* ☐ *Other.....* ☐

Q10 Is Admission 3 .....

	Yes	No
Male?	☐	☐
Diagnosis schizophrenia?	☐	☐
35 years old or younger?	☐	☐
Sectioned?	☐	☐
Admitted for risk of harm to self?	☐	☐
Admitted for risk of harm to others?	☐	☐

Postcode

Q11 How many incidents of aggression have there been during the shift?

	0	1	2	3	4	5	6	7	8	9	10	>
Verbal aggression	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Physical aggression against objects	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Physical aggression against others	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

PLEASE TURN OVER AND COMPLETE THE OTHER SIDE! THANK YOU.

Q12 How many incidents of general rule breaking have there been during the shift?

	0	1	2	3	4	5	6	7	8	9	10	>
Smoking in a no smoking area	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Refusing to eat	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Refusing to drink	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Refusing to attend to personal hygiene	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Refusing to get up and out of bed	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Refusing to go to bed	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Refusing to see workers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q13 How many incidents of drug or alcohol use have there been during the shift?

	0	1	2	3	4	5	6	7	8	9	10	>
Alcohol use (suspected or confirmed)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Other substance misuse (suspected or confirmed)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q14 How many incidents of absconding behaviour have there been during the shift?

	0	1	2	3	4	5	6	7	8	9	10	>
Attempting to abscond	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Absconding (missing without permission)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Absconding (official report)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q15 How many incidents of medication related behaviours have there been during the shift?

	0	1	2	3	4	5	6	7	8	9	10	>
Refused regular medication	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Refused PRN medication	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Demanding PRN medication	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q16 How many uses of these containment measures have there been during the shift?

	0	1	2	3	4	5	6	7	8	9	10	>
Given PRN medication (psychotropic)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Given IM medication (enforced)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Sent to PICU or ICA	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Seclusion	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Special observation (intermittent)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Special observation (continuous with engagement)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Speclal observation (continuous without engagement)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Show of force	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Physically restrained	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Time out	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q17 Please provide the Bongar Lethality Scale scores (see project handbook) for any incidents on self harm or suicide attemtps by patients during the shift. If there are no incidents please leave blank.

	0	1	2	3.5	6	7	8	9	10
Incident 1	☐	☐	☐	☐	☐	☐	☐	☐	☐
Incident 2	☐	☐	☐	☐	☐	☐	☐	☐	☐
Incident 3	☐	☐	☐	☐	☐	☐	☐	☐	☐
Incident 4	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q18 [Office use only] Research centre

South ..... ☐ *Central* ..... ☐ *North* ..... ☐

Q19 [Office use only] Research number

	0	1	2	3	4	5	6	7	8	9
First digit	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Second digit	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Selected guidance and definitions given to staff for completion of the PCC-SR

Q4 Main ward door locked to patients leaving

Please record details of the times during the shift that the door was locked to those wishing to leave. Do not count if the door was only locked to those wishing to enter. Do count, even if the door is unlocked on the request of those who have permission to leave, either by the use of a key, swipe card, or 'buzzer button' under the control of staff.

Q5 – Q10 Details of admission(s)

The questions allow you to record details of up to three admissions that occur during the shift. If there are no admissions, leave all questions blank. If only one admission, answer only the three questions relating to admission one, etc. If there are more than three admissions, record details only of the first three.

For the purposes of this study, transfers into your ward count as an admission, so please include them. This is because they will contribute to the levels of conflict and containment on your ward.

Ethnicity: please record what you, the person completing the form, perceive to be the admitted patients ethnicity.

Diagnosis: please use whatever is recorded in the case notes or what is verbally reported to the nursing team by the medical staff, to determine your answer to this question. If the diagnosis is not known or uncertain, please answer no to this question.

Sectioned: answer yes if at time of arrival on your ward the patient was formally detained under any section of the Mental Health Act.

Postcode: The computer can't read written text, this will be manually entered by the research staff. They may not be familiar with the postcodes in your locality. So please write clearly in the box using capital letters. It is important we get the whole six or seven letter/digit postcode.

Q11 Incidents of aggression

Please place a tick in each row. If there have been no incidents of the particular type at all, please tick the '0' box, otherwise the information will be missing from the study results. The numbers you report should be of incidents, events or incidents, not patients. For example, if the same patient is physically aggressive towards others twice, this counts as two incidents during the shift. Please only record incidents which take place within the hospital grounds.

Verbal aggression:	Loud noises, angry shouting, personal insults, cursing, foul language, threats, of a sufficient duration, intensity or volume that you would usually mention it in the nursing notes of the patient.
Physical aggression against objects:	Slamming doors, making a mess, throwing things, kicking things, breaking things, setting fires.
Physical aggression against others:	Swings at people, grabs them, strikes, kicks, pushes, pulls hair, attacks others.

Q12 Incidents of general rule breaking

Please place a tick in each row. If there have been no incidents of the particular type at all, please tick the '0' box, otherwise the information will be missing from the study results. The numbers you report should be of events or incidents, not patients. For example, if the same patient refuses to eat twice, this counts as two incidents during the shift. Please only record incidents which take place within the hospital grounds.

In all cases where patients refuse (e.g. to go to bed, or to take regular medication, etc.) please count as an incident even if after nursing time and attention the patient is persuaded to comply.

Refusing to see workers	Patient refuses to see worker when asked, or attend meeting (e.g. ward round, review) or comply with routine procedure (e.g. give blood/urine sample, sign care plan), even if the patient is eventually persuaded to comply.

Q13 Incidents of drug or alcohol use

Please place a tick in each row. If there have been no incidents of the particular type at all, please tick the '0' box, otherwise the information will be missing from the study results. Please record incidents even when consumption has taken place elsewhere, but the patient returns to the ward 'under the influence'.

Q14 Incidents of absconding behaviour

Please place a tick in each row. If there have been no incidents of the particular type at all, please tick the '0' box, otherwise the information will be missing from the study results. The numbers you report should be of events or incidents, not patients. For example, if the same patient attempts to abscond twice, this counts as two incidents during the shift.

If a patient is missing without permission, and is then later officially reported, this counts as one of each type of event.

Q15 Incidents of medication related behaviours

Please place a tick in each row. If there have been no incidents of the particular type at all, please tick the '0' box, otherwise the information will be missing from

the study results. The numbers you report should be of events or incidents, not patients. For example, if the same patient refuses regular medication twice, on two separate occasions, rather than doses of two different drugs, this counts as two incidents during the shift.

Demanding PRN medication	Asking for, requesting or demanding PRN medication when it is not required or justified.

Q16 Uses of containment measures

Please place a tick in each row. If there have been no incidents of the particular type at all, please tick the '0' box, otherwise the information will be missing from the study results. The numbers you report should be of events or incidents, not patients. For example, if the same patient is physically restrained and placed in seclusion, this counts as two incidents during the shift, one of each type.

PRN medication:	Medication given at the nurses' discretion in addition to regular doses, by any route, and accepted voluntarily. Ignore analgesic or antiparkinsonian medication, must be psychotropic.
IM medication (enforced):	Intramuscular injection given without consent.
Show of force	A number of staff are assembled within view of the patient, with the implicit or explicit threat that the patient will be physically restrained or forced to undergo treatment, unless they comply voluntarily.
Sent to PICU or ICA:	Transferred to Psychiatric Intensive Care Unit, or Intensive Care Area
Seclusion:	Isolated in a locked room
Special observation (intermittent):	Any increased level of observation, of a greater intensity than that which any patient generally receives, and which is coupled with allocation of responsibility to an individual nurse or other worker. Periodic checks at intervals. Count once for each shift or part of shift observation maintained.

Special observation (continuous with engagement)	Any increased level of observation, of a greater intensity than that which any patient generally receives, and which is coupled with allocation of responsibility to an individual nurse or other worker. Continuous: within eyesight or arms reach of the observing worker at all times. With engagement: worker attempts to listen, interact, converse, or engage in activities with the patient. Count once for each shift or part of shift observation maintained.
Special observation (continuous without engagement)	Any increased level of observation, of a greater intensity than that which any patient generally receives, and which is coupled with allocation of responsibility to an individual nurse or other worker. Continuous: within eyesight or arms reach of the observing worker at all times. Without engagement: no or minimal interaction takes place, for whatever reason. Count once for each shift or part of shift observation maintained.
Physically restrained:	Any occasion on which staff physically hold the patient, preventing movement, typically in order to prevent imminent harm to others or self, or to give treatment, or to initiate other methods of containment. If patient restrained in order to give medication, or to be placed in seclusion etc., count one for each category.
Time out:	Patient asked to stay in room or area for period of time, without the door being locked.

Q 17 Incidents of self-harm or suicide attempts

Unlike the previous questions, please tick one box per row for each incident that takes place during the shift, using the guidelines for 'Bongar scores' that follow. If the same patient self-harms twice, this counts as two incidents, and each should be allocated a 'Bongar score' on different rows. If there are no self-harm or suicide attempts during the shift, please leave answers to Q 17 blank. Ticking the '0' box in a row of this question indicates that *there has been a self-harm incident* of a very minor kind, *not that there has been no incident at all.*

Many of us on the research team are of have been psychiatric professionals, responsible for patients, staff and wards. We are well aware of how upsetting it is when a serious attempted or successful suicide occurs on an acute ward. Probably the last thing on your mind at such a time will be the completion of the PCC-SR. However, it is very important for the validity of the study that we capture that information, and want to encourage you as much as possible to

keep completing the forms. Through this City 128 study, we will be discovering solid information that will help us decide how best to act to keep patients safe in future. Please help us in making the results as sound as they can be, through accurate and comprehensive reporting, even when times are difficult.

Here is a summary of the Bongar score scale points. Over the next few pages are detailed descriptions that will aid you in choosing a precise rating [These may be found in Bongar, 1991].

0.0	Death is an impossible result of the 'suicidal' behaviour.
1.0	Death is very highly improbable. If it occurs it would be a result of secondary complication, an accident, or highly unusual circumstances.
2.0	Death is improbable as an outcome of the act. If it occurs it is probably due to unforeseen secondary effects. Frequently the act is done in a public setting or is reported by the person or by others. While medical aid may be warranted, it is not required for survival.
3.5	Death is improbable so long as first aid is administered by victim or other agent. Victim usually makes a communication or commits the act in a public way or takes no measures to hide self or injury.
5.0	Death is a 50-50 probability directly or indirectly, or in the opinion of the average person, the chosen method has an equivocal outcome. Use this rating only when: (a) details are vague; (b) a case cannot be made for rating either a 3.5 or 7.0.
7.0	Death is the probable outcome unless there is 'immediate' and 'vigorous' first aid or medical attention by victim or other agent. One or both of the following are also true: (a) makes communication (directly or indirectly); (b) performs act in public where he (or she) is likely to be helped or discovered.
8.0	Death would ordinarily be considered the outcome to the suicidal act, unless saved by another agent in a 'calculated' risk, e.g. nursing rounds of expecting a room-mate or spouse at a certain time. One or both of the following are true: (a) makes no direct communications; (b) takes action in private.
9.0	Death is a highly probably outcome: 'Chance' intervention and/or unforeseen circumstance may save victim. Two of the following conditions also exist: (a) no communication is made; (b) effort is put forth to obscure act from helpers' attention; (c) precautions against being found are instituted, e.g. absconding.
10.0	Death is almost a certainty regardless of the circumstances or interventions by an outside agent. Most of the people at this level die quickly after the attempt. A very few survive through no fault of their own.

Appendix 2 Basic ward data forms

Researcher and ward staff completed form

The Physical Environment

Number of single rooms (not counting divided dormitory)

A quiet room is available? (yes/no)

A no smoking room is available? (yes/no)

A private outdoor space is available? (yes/no)

Does that outside space adjoin the ward? (yes/no)

Is that outside space secure (i.e. fenced, as opposed to open access to the rest of the hospital grounds)? (yes/no)

A working telephone for users is available? (yes/no)

Windows in doors of single rooms? (all/some/none)

Number of beds in shared rooms/dorms (divided): (curtains do not count as divisions, solid screens do, even if open at the top)

Number of beds in shared rooms/dorms (undivided)

Year of last ward redecoration

Year of last full ward refurbishment

Decade ward built

Unified décor (furniture matches) (all/some/none)

Walls (nice new pictures/old grubby dull pictures/none, or old notices or posters)

Quality of plants (very good/average/poor/none)

Rugs, mats, or table cloths present (many/some/none)

General light (very light and airy/average/dark and dingy)

General view from windows (nice cityscape/landscape, long view/

average, moderately enclosed/poor, overlooked, industrial, enclosed)

Windows have curtains? (all/some/none)

Can the curtains be closed? (all/some/none)

Number of repairs awaited

How long is the average wait for a repair?

General state of hygiene (very good/average/poor/dirty):

Are the staff able to directly control the temperature (yes/no)

General ceiling height in metres

Floor (basement, ground, first etc.)

Observability

Number of rooms open to patients during daytime shifts

Number of independently observable zones, as demarcated by corners/doorways of the main corridor or hall

Number of zones visible from the main nursing office or nurses station (count from one only, not both, choosing the one with the best visibility)

Number of unlocked exits from the ward during daytime shifts, including windows which can be opened at ground floor level

Number of patient releasable exits, e.g. break glass fire doors

Number of exits of any sort visible from the main nursing office or nurses station (count from one only, not both, choosing the one with the best visibility)

Number of floors comprising ward

Additional information

Is an advocacy service available to patients? (yes/no)

Does User Focused Monitoring take place? (yes/no)

Ward manager completed form

The ward

Number of beds

Number of patients who have been on ward more than three months

Pattern of operation in locality (Ward serves single sector/Ward serves multiple sectors/Ward is an admission ward for large district that feeds other wards which are sector affiliated/Ward is an overspill ward for other sector affiliated wards/Ward has a special function of some sort)

Ward's community or sector is served by (tick what applies): Crisis intervention/resolution team; Home treatment team; Assertive Outreach team; Early Intervention team

The ward is for (Men/Women/Both)

Staffing

Numbers of staff in Whole Time Equivalents* (Establishment numbers and Actual numbers)

Nurses grade I

Nurses grade H

Nurses grade G

Nurses grade F

Nurses grade E

Nurses grade D

Nurses grade C

Nurses/HCAs grade B

Nurses/HCAs grade A

Consultant Psychiatrists

Other doctors (e.g. SPRs, Clin. Asst.s)**

Occupational Therapists**

Clinical Psychologists**

Nurse Consultants**

* Including night staff

** Please note only proportion of full time post provided to ward

Number of Consultant Psychiatrists who are locums

Organisation and use of staff

Organisation and use of staff

Style of ward manager operation (Does shifts/9-5 only)

Night cover (Permanent night staff/Internal Rotation)

Community meeting held regularly (Yes/No)

Number of sessions planned patient activity on ward per week

Containment availability

Access to a seclusion room (On ward/Off ward, but on site/None)

Access to specialist Psychiatric Intensive Care Unit (Available on site/Available at another hospital/None)

Access to Intensive Care Area (Available on ward/Available on ward on site/Available at another hospital/None)

Banned items

Please indicate whether the item is always, sometimes, or never banned on this ward.

Alcoholic drinks

Batteries

Disposable razors

Flexes/cables

Illegal drugs

Lighters/matches

Medications/tablets

Nail files

Pencils/pens

Penknives

Perfume/after-shave

Plastic bags

Razor blades

Scissors

Solvents (e.g. glue, lighter fluid)

Weapons (e.g. hunting knife)

Searching on admission

Please indicate whether the practice is always, sometimes, or never carried out on this ward.

Bag search

Pockets search

'Rub-down' search (e.g. as used by airport security)

Strip search (client asked to undress)

Check with fixed point or hand held metal detector

Additional searches

Please indicate whether the practice is always, sometimes, or never carried out on this ward.

Patients' property is searched on return from leave

Patients' bed spaces searched (e.g. lockers, under beds etc.)

Visitors searched

Restrictions on patients

Please indicate whether the practice is always, sometimes, or never carried out on this ward.

Bathrooms are kept locked when not in use

Taps/plugs removed from bath (state either or both)

Plastic crockery is used

Plastic cutlery is used

Plastic glasses/tumblers are used

Cleaning cupboard locked (mop, bleach etc.)

Patients do not have access to boiling water for drinks

Cutlery counted after use

Illegal drug testing and control

Please indicate whether the practice is always, sometimes, or never carried out on this ward.

Urine or blood testing on admission

Reporting to the police if drugs discovered

Urine or blood testing on return from leave

Random urine or blood testing

Urine or blood testing upon reasonable grounds for suspicion

Alcohol testing and control

Please indicate whether the practice is always, sometimes, or never carried out on this ward.

Breath or blood testing on admission

Breath or blood testing on return from leave

Random breath or blood testing

Breath or blood testing upon reasonable grounds for suspicion

Patient-related sanctions

Please indicate whether the practice is always, sometimes, or never carried out on this ward.

Patients made to pay for damaged hospital property

Patient prosecuted for violent assaults

Problem patient visitors refused entry

Security features

Which of the following features are present on the ward? Please tick all security measures present. Ignore those not present.

Swipe card system (at ward entrance)

Swipe card system (at unit entrance)

Key pad system (at ward entrance)

Key pad system (at unit entrance)

Intercom system (at ward entrance)

Intercom system (at unit entrance)

Personal panic alarms for staff

Panic alarms in some / most / all rooms (circle appropriate answer)

Panic alarm in the office only

Panic alarm sounds in whole unit / ward only (circle appropriate answer)

Emergency response telephone extension

Cctv on ward

Cctv in rest of unit

Metal detector on ward

Metal detector at entrance to unit

Security desk at entrance to unit

Access to security guard/s at all times

Rapid response team on call at all times to respond to violent crises

Use of police sniffer dogs to search ward for illegal drugs

Police called to deal with violent patients on ward

To avoid potential for barricading, doors to single rooms open in either direction

Ligature point audit has been conducted

Ligature points have been removed all / most / some / none (circle appropriate answer)

Appendix 3 The conflict and containment economic interview

Instructions to subject

In this interview we are interested in trying to obtain some information about the financial costs associated with patient conflict behaviours (e.g. self-harm, aggression) and staff containment measures (e.g. special observation, PRN medication). In a moment we are going to ask you to describe typical incidents and staff containment strategies. While you are describing these, we will be asking you for further details so that we can translate what you tell us into pounds and pence. We will specifically want to know about what staff are involved, how much time is taken up, perhaps what medications were used. We understand that many incidents occasionally have additional costs (e.g. staff sickness, increased patient length of stay). However, although these are important, they are very difficult to assess and cost in detail. We are therefore conducting this limited exercise so that at least we have some idea of the financial costs of these staff tasks. At the moment we do not even have that.

You have been chosen for this interview because you are a senior and more experienced member of staff. We are going to ask you about usual events, or what typically happens. We'd like you to draw upon your experience of acute inpatient psychiatry in order to tell us about these. We know that events on acute wards are very varied, and it will not always be easy to say what is the norm, or typical. Please feel free to provide us with a range, especially in relation to staff time. For example, you might say an incident can be over in five minutes or sometimes half an hour. We'll then ask you to give an estimate of what proportion of times it is a longer or shorter incident.

For example, if we were asking about ward rounds, you might tell us that typically the ward manager, consultant psychiatrist, junior doctor, psychologist and social worker were present, and that usually they lasted for two hours but maybe about one in ten times they ran on for another hour, making three hours in total. Do you see what we mean? Do you have any questions at this point?

OK, then let's try another example, just to get you used to the type of questions we are going to ask. Let's think about a midday day ward handover. How many staff and what grades are typically present? How long does it last? Does it sometimes last longer? If so, how much longer and how frequently? Do you get the idea? Any questions?

OK, let's proceed with the interview. The incidents, events and staff tasks we want to ask you about are the same as those you have been recording via the end of shift reports (PCC-SRs) that you have been collecting for the City 128 study, so they should be familiar to you.

The first section is about aggression, verbal, against objects, against others, or against self.

Verbal aggression:

Loud noises, angry shouting, personal insults, cursing, foul language, threats, of a sufficient duration, intensity or volume that you would usually mention it in the nursing notes of the patient.	Prompts in addition to direct time: Written reports into notes by nurses or medics? Written formal incident reports? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Any telephone time? Liaison with relatives?

- Usual or typical case: Staff numbers, grades, and time spent in minutes?
- More rare or severe case: Staff numbers, grades, and time spent in minutes?
- Proportion of events falling into the more severe category?

These same three questions were explored in relation to each of the following events:

Physical aggression against objects:

Slamming doors, making a mess, throwing things, kicking things, breaking things, setting fires.	Prompts in addition to direct time: Written reports into notes by nurses or medics? Written formal incident reports? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Any telephone time? Liaison with relatives? Debriefing of other patients afterwards?

Physical aggression against self or suicide attempt:

Picks or scratches at self, hits self, pulls own hair, bangs head, punches objects, throws self on floor, cuts, bites or otherwise mutilates self, overdose, serious cuts, etc	Prompts in addition to direct time: Written reports into notes by nurses or medics? Written formal incident reports? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Any telephone time? Liaison with relatives? Debriefing of other patients afterwards?

Physical aggression against others:

Swings at people, grabs them, strikes, kicks, pushes, pulls hair, attacks others.	Prompts in addition to direct time: Written reports into notes by nurses or medics? Written formal incident reports? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Any telephone time? Liaison with relatives? Debriefing of other patients afterwards?

[Some extra questions asked in relation to violence were: On what proportion of occasions does a member of staff get injured during a violent incident? When an injury does occur to a member of staff, how frequently are they off sick afterwards? (i.e. a proportion of a proportion)? How long are they usually off sick for (in days)?]

Patient smokes in a no smoking area:

For example, smoking in day room, or smoking in kitchen, dining room or smoking in bed or in the dormitory. Wherever on the ward it is banned.	Prompts in addition to direct time: Written reports into notes by nurses or medics? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time?

Patient refuses to eat:

	Prompts in addition to direct time: Written reports into notes by nurses or medics? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Monitoring time? Time spent giving dietary supplements?

Patient refuses to drink:

	Prompts in addition to direct time: Written reports into notes by nurses or medics? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Monitoring fluid balance? Medical assessment time/tests

Patient refuses to attend to their personal hygiene:

	Prompts in addition to direct time: Written reports into notes by nurses or medics? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time?

Patient refuses to get up and out of bed:

	Prompts in addition to direct time: Written reports into notes by nurses or medics? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time?

Patient refuses to go to bed:

	Prompts in addition to direct time: Written reports into notes by nurses or medics? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time?

Patient refuses to see workers:

Patient refuses to see worker when asked, or attend meeting (e.g. ward round, review) or comply with routine procedure (e.g. give blood/urine sample, sign care plan), even if the patient is eventually persuaded to comply.	Prompts in addition to direct time: Written reports into notes by nurses or medics? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time?

Alcohol use by a patient (confirmed or suspected):

Either consuming alcohol on the ward, or returning from leave intoxicated.	Prompts in addition to direct time: Written reports into notes by nurses or medics? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Any telephone time? Liaison with relatives?

Other substance misuse by a patient (confirmed or suspected):

Either on the ward or returning from leave under the influence of drugs.	Prompts in addition to direct time: Written reports into notes by nurses or medics? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Any tests?

Patient attempts to abscond:

	Prompts in addition to direct time: Written reports into notes by nurses or medics? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time?

Patient absconds and is officially reported:

	Prompts in addition to direct time: Written reports into notes by nurses or medics? Written formal incident reports? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Any telephone time? Liaison with Police and relatives?

Patient absconds and is missing without permission:

Those occasions on which there is less concern about a patient and no immediate official report is made.	Prompts in addition to direct time: Written reports into notes by nurses or medics? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Any telephone time? Liaison with relatives?

Patient refuses regular or PRN medication:

	Prompts in addition to direct time: Written reports into notes by nurses or medics? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? **Do not** include MHA-related activity

Patient demands PRN medication:

Asking for, requesting or demanding PRN medication when it is not required or justified.	Prompts in addition to direct time: Written reports into notes by nurses or medics? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time?

[Additional instruction given at this point: Next we will consider different types of containment for the conflict behaviours we've been asking you about so far. We recognise that sometimes these go together, or sometimes follow one another. However, for the purposes of this costing exercise, we'd like to try to consider each one separately, so that we can match the information with the other data you have been supplying via the PCC-SR.]

Given PRN medication (psychotropic):

Medication given at the nurses' discretion in addition to regular doses, by any route, and accepted voluntarily. Ignore analgesic or antiparkinsonian medication, must be psychotropic.	Prompts in addition to direct time: Written reports into notes by nurses or medics? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Any telephone time?

[Extra question at this point: What is the typical PRN medication given? (Please give name of drugs, dose and route of administration)]

Time out:

Patient asked to stay in room or area for period of time, without the door being locked. More severe = max one full shift.	Prompts in addition to direct time: Written reports into notes by nurses or medics? Written formal incident reports? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Any telephone time? Liaison with relatives?

Intermittent Special Observation:

Any increased level of observation, of a greater intensity than that which any patient generally receives, and which is coupled with allocation of responsibility to an individual nurse or other worker. Periodic checks at intervals. More severe = max one full shift.	Prompts in addition to direct time: Written reports into notes by nurses or medics? Written formal incident reports? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Any telephone time? Liaison with relatives?

Continuous special observation, with or without engagement:

Any increased level of observation, of a greater intensity than that which any patient generally receives, and which is coupled with allocation of responsibility to an individual nurse or other worker. Continuous: within eyesight or arms reach of the observing worker at all times. More severe = max one full shift.	Prompts in addition to direct time: Written reports into notes by nurses or medics? Written formal incident reports? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Any telephone time? Liaison with relatives?

Show of force:

A number of staff are assembled within view of the patient, with the implicit or explicit threat that the patient will be physically restrained or forced to undergo treatment, unless they comply voluntarily.	Prompts in addition to direct time: Written reports into notes by nurses or medics? Written formal incident reports? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Any telephone time??

Physically restrained:

Any occasion on which staff physically hold the patient, preventing movement, typically in order to prevent imminent harm to others or self, or to give treatment, or to initiate other methods of containment.	Prompts in addition to direct time: Written reports into notes by nurses or medics? Written formal incident reports? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Any telephone time? Liaison with relatives?

Given IM medication (enforced):

Intramuscular injection given without consent.	Prompts in addition to direct time: Written reports into notes by nurses or medics? Written formal incident reports? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time?

[Extra question at this point: What is the typical IM medication given on these occasions? (Please give name of drugs and doses)]

Seclusion:

Isolated in a locked room. More severe = max one full shift.	Prompts in addition to direct time: Written reports into notes by nurses or medics? Written formal incident reports? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Any telephone time? Liaison with relatives?

Sent to Psychiatric Intensive Care Unit or Intensive Care Area:

	Prompts in addition to direct time: Written reports into notes by nurses or medics? Written formal incident reports? Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)? Less formal staff discussion or other meetings time? Any telephone time? Liaison with relatives?

Instructions for interviewer:

While respondent is telling the story, ask for type and grade of staff undertaking various activities, and specific timings. People automatically think of actual events, and usually recent events. In order to remind them not to fix on a specific incident, ask questions like the following: Is it typical? Is it representative? Can you think of other examples?

Ask the respondent to estimate two scenarios, the usual or typical case, and what happens more rarely when things are more severe. For the more severe example, ask how frequently it is this severe: 1% of occasion, 5%, 10% - ask them to estimate. Do not allow them to think in terms of extreme, once in a lifetime cases. Just rare and usual.

Include the time of all professional staff who get involved. Ignore students, porters or domestics. All times are in minutes. The key things we need to know about each type of event is the number of staff, what grade they are, and how much time each of them give. If the grade cannot be given, then say whichever nurses is available and on duty – and we can then calculate costs using an average.

Please note that the times we are seeking are not the duration of the event, but the amount of staff time devoted to dealing with it. In any case, limit all durations to a maximum of what can happen within one shift.

Press the respondent to estimate or guess, even if they are reluctant. Their guesstimate will be better than ours, and we will be able to compare theirs with others to provide an estimate with enhanced reliability.

When they have finished, prompt them for any aspects of the activity they may have missed, for example (these are only likely to apply to some types of incidents):

- Written reports into notes by nurses or medics?
- Written formal incident reports?
- Verbal report at handover (remember to count the time of the listeners as well as the person reporting!)?
- Less formal staff discussion or other meetings time?
- Any telephone time?
- Liaison with relatives?

Conflict and containment are often interwoven in a complex escalating sequence, for example kicking the ward door can lead to restraint followed by PRN medication, or medication refusal leading to show of force, then restraint and compulsory IM medication. Please assist your respondent to separate these for costing purposes. You can acknowledge that this is a bit artificial, but necessary in order to match up this interview results with the PCC-SR. When asking about conflict behaviours, for example, include all the time and staff resources used, up to the point that it is decided to use a particular containment strategy.

Again, many containment measures are applied together (e.g. restraint and compulsory medication). Please try to cost them separately (i.e. in the same way they have been counted on the PCC-SR).

Appendix 4 Patient interview

1. About You

How old are you?

(Please state for the record whether the interviewee is male or female)

What do you consider to be your ethnicity?

Is this your first admission to a psychiatric ward?

How do you feel in general about your stay here?

2. Environment

What do you like about the way the ward is set up?

What don't you like about the way the ward is set up?

Are there any places on the ward that you avoid going to? Why?

How does it feel when you are on the ward at a weekend?

How do you feel when it is evening and night time on the ward? How is this different to how you feel during the daytime?

3. Other Patients

What do you think (and/or feel) about the other patients on the ward?

Do other patients worry you?

What kind of patients make you feel like this?

Do you feel that some of the other patients might be dangerous to you?

Why do you think that they may be dangerous to you?

What kind of things do they do to make you feel that they might be dangerous to you?

What kind of things do you do to keep yourself safe from other patients?

Is there anything that causes you anxiety or makes you afraid on the ward that you feel staff do not know about?

Do you know how to get help if something dangerous or frightening happens on the ward?

4. Some questions about other things that may happen on the ward

Apart from the things already mentioned, what kind of things happen on the ward that scare you or make you feel uncomfortable?

Have you ever seen anyone behave in a violent or abusive way on the ward? (Note: this may include staff)

We have heard that sometimes unpleasant things can happen on psychiatric wards, for example violence, verbal abuse, stealing of property, bullying, coercion, extortion of money, threats, and inappropriate sexual behaviour. Have any of these things happened to you or have you seen it happen to others? Does it happen? Can you give some examples?

Overall, how do you keep yourself safe on the ward?

Are you aware of any patients who are taking illegal drugs or alcohol on the ward?

How does this make you feel?

Does this worry other patients?

Have you seen any other patients on this ward looking insecure or frightened because of the behaviour of others?

What do they do to cope?

5. Staff

Are there any staff that make you feel more safe when they come on duty?

How do they make you feel that way, what do they do that is different?

Are the staff available to protect you and keep you safe? How do they do that (or fail to do it)?

Do any of the staff frighten you?

What things do they do that frighten you?

How do you keep yourself safe from them?

6. Treatment

Is the psychiatric treatment people get here frightening?

Can you tell us about that?

What treatments are frightening and why?

7. Some more questions about you.

Have you personally experienced or witnessed racism on inpatient wards?

What forms did it take?

How did you feel about it?

8. Leaving the hospital/being discharged

What will you miss about the ward when you leave?

Do you worry about your home while you are on the ward? What are those worries about?

Is there anything you are worried about in regards to your being discharged from the ward? (Prompt: Are you anxious about being discharged? If so why? Do you

think you are getting ready to be discharged? Or are you worried about not being discharged?)

9. Conclusion

Is there anything else that happens here that causes you worry, or anxiety, that we haven't already covered?

Which are your biggest worries out of the ones we have discussed?

Appendix 5: Frequency table

Frequency of conflict and containment events per 24 hours per ward

	Minimum	Maximum	Mean	Std. Dev.	Median	Skewness	Kurtosis	B/w Trust variance	Within Trust variance	B/w region variance	Within region variance
Verbal abuse	0.30	5.94	2.41	1.40	2.25	0.81	-0.02	3.74	1.54	4.00	1.92
Aggression to objects	0.05	1.23	0.47	0.30	0.39	1.04	0.51	0.19	0.06	0.33	0.08
Physical assault	0.01	0.90	0.33	0.22	0.27	0.90	0.08	0.10	0.04	0.11	0.05
Smoking in ns area	0.11	11.28	2.47	2.72	1.46	1.84	3.11	17.95	4.97	23.65	7.13
Refusing to eat	0.13	2.16	0.88	0.50	0.84	0.81	0.25	0.23	0.25	0.20	0.25
Refusing to drink	0.01	1.22	0.39	0.30	0.30	1.14	0.81	0.11	0.09	0.35	0.08
Refusing to wash	0.11	4.08	1.34	1.02	1.05	1.32	1.17	1.87	0.85	0.03	1.06
Refusing to get up	0.06	2.13	0.74	0.52	0.61	1.10	0.60	0.41	0.24	0.72	0.26
Refusing to go to bed	0.04	1.35	0.46	0.30	0.39	1.21	1.03	0.14	0.08	0.03	0.09
Refusing to see workers	0.01	0.52	0.17	0.12	0.14	1.20	1.34	0.03	0.01	0.04	0.01
Alcohol use	0.03	1.01	0.35	0.24	0.29	1.12	0.94	0.07	0.06	0.18	0.06
Drug use	0.03	1.03	0.32	0.27	0.23	1.46	1.50	0.09	0.07	0.15	0.07
Attempts to abscond	0.08	2.15	0.63	0.50	0.49	1.60	2.14	0.32	0.23	0.67	0.24
Absconding (missing)	0.02	0.77	0.31	0.17	0.27	0.74	0.12	0.04	0.03	0.11	0.03
Absconding (official report)	0.01	0.60	0.18	0.13	0.15	1.45	1.95	0.02	0.02	0.02	0.02
Refused regular meds	0.17	2.19	0.89	0.52	0.71	0.93	-0.02	0.63	0.19	1.07	0.26
Refused prn meds	0.02	0.83	0.30	0.19	0.27	1.12	0.78	0.06	0.03	0.13	0.03
Demand prn meds	0.13	2.66	1.10	0.63	0.89	0.84	0.02	0.50	0.37	0.24	0.39
Self harm	0.00	1.16	0.36	0.34	0.26	1.00	-0.07	0.41	0.05	3.19	0.07
Given prn	0.57	5.12	2.16	1.12	1.89	0.97	0.45	2.07	1.07	10.66	1.11
Given IM	0.00	0.49	0.15	0.11	0.11	1.37	1.84	0.03	0.01	0.03	0.01
Sent to PICU or ICA	0.00	0.14	0.04	0.04	0.03	1.42	1.66	0.00	0.00	0.00	0.00
Seclusion	0.00	0.20	0.05	0.06	0.03	1.30	0.72	0.01	0.00	0.01	0.00
Intermittent observation	0.00	17.42	5.14	4.69	4.69	0.88	0.11	50.74	15.50	122.75	20.51
Constant special observation	0.09	4.19	1.34	1.08	0.99	1.14	0.53	1.65	1.06	0.16	1.18
Show of force	0.00	0.92	0.28	0.24	0.20	1.32	1.13	0.09	0.05	0.32	0.05
Manual restraint	0.01	0.60	0.20	0.15	0.15	1.12	0.56	0.05	0.02	0.08	0.02
Time out	0.00	1.38	0.31	0.34	0.17	1.51	1.66	0.24	0.09	0.01	0.12

This table was constructed from the end of shift patient-staff Conflict Checklists by taking the mean value per ward by shift type (AM, PM and NIGHT) and summing to produce a mean rate of incidents per 24-hour period. All values were then standardised to rates per 20 beds, and those values trimmed at the 1% level (standard Deviation > ± 2.32).

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Addendum

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