The City 128 extension: locked doors in acute psychiatry, outcome and acceptability

Report for the National Co-ordinating Centre for NHS Service Delivery and Organisation R&D (NCCSDO)

May 2008

prepared by

Len Bowers
- Department of Mental Health, City University

Teresa Allan
- Health Care Research Unit, City University

Kristina Haglund
- Department of Public Health, Uppsala University

Eimear Mir-Cochrane
- Department of Mental Health, City University, and School of Nursing and Midwifery, Flinders University

Henk Nijman
- Department of Mental Health, City University, and Nijmegen University

Alan Simpson
- Department of Mental Health, City University

Marie Van Der Merwe

▪Department of Mental Health, City University

Address for correspondence

Len Bowers

City University, Philpot Street, London, E1 2EA

E-mail: L.Bowers@city.ac.uk

Contents

Acknowledgements

We would like to thank Malcolm Rae for his encouragement and support in getting this project off the ground. We would also express our gratitude to all those who participated in the research: patients staff and visitors who agreed to be interviewed or fill out questionnaires. Without their generous commitment there would be no research, no findings, and no report to guide our practice in this important area.

The Report

1 LOCKED DOORS IN ACUTE INPATIENT PSYCHIATRY: A LITERATURE REVIEW

1.1 INTRODUCTION

In recent years, psychiatric inpatient wards in the UK have been through several phases where door were either open or locked. Asylums of the nineteenth century were sanctuaries, located outside of a town or city, with large buildings, widespread grounds and few patients(Boardman 2005). World War I (1914-1918) brought about a severe shortage of staff and space in asylums. The majority of staff were drafted for war and it was often impossible to replace attendants, even with inexperienced workers. Many of the bigger asylums were used as military hospitals and displaced patients overcrowded the remaining asylums(Jones 1960). Lack of resources and poor treatment was a common phenomenon. Custodial care became a survival mechanism for those asylums and a lot of patients were kept under lock and key(Clarke 1993;Ryan 1956;Sacks, Nininger, & La Torre 2000).

After the war ended, the publicity, debate, and eventual understanding that was given to soldiers suffering from shell shock(Barham 2004), led directly to the first proposals for the Mental Health Act 1930. This act made provision for voluntary admission to mental hospitals(Jones 1960). Customarily nursing staff would patrol the corridors with bunches of keys and doors would be kept locked day and night. With the increasing admission of voluntary patients asylums started to build or open wards, which were not locked, for patients who came in to be treated on a voluntary basis. More and more doors were opened so some patients could come and go as they pleased(Jones 1960).

The Second World War (1939-1945) again brought about poor conditions for psychiatric hospitals(Clarke 1993). Understaffing, resource shortages and overcrowding mental hospitals bring about a returned to custodial, locked, isolated hospitals(Cherry 2003).

After WWII, on 5 July 1948, the National Health Service (NHS) was established(Boardman 2005). By the late 1940s and 1950s, almost all the innovative hospitals were using the "open door" policy. This "open door" policy included quick admission, vigorous medical treatment and early discharge(Murphy 1991). There were still many long stay patients, but the majority went home within six months after admission. The discovery of tranquilising drugs also made it possible to control agitated patients without

depriving them or others of their freedom by locking the ward(Jones 1960). The harmful consequences of total institutions were widely acknowledged and the fear of "institutionalisation" encouraged mental health staff to think of alternative ways to care for the mentally ill(Murphy 1991). The early 1960s saw the beginning of the community care era and this has remained official policy ever since (Gostin 1986;Jones 1960).

By the 1970s all non-forensic psychiatric ward doors were open, and the first locked psychiatric intensive care units (PICU's) were being created for patients unmanageable on open wards (Crowhurst & Bowers 2002), although even some of these took pride in remaining unlocked. This is still a relatively new phenomenon and there are vast differences in policy, admission criteria, etc., between different PICUs (Bowers et al. 2008b;Bowers et al. 2003).

In the last two decades psychiatric care has been marked by a decrease in inpatient population and care, the opening of PICUs and the continued development of community care(Boardman 2005). In 2002, almost 100 of the 130 psychiatric hospitals active in England and Wales in 1975 were had been shut down and the rest were much reduced in size(Holloway, Carson, & Davis 2002). Alongside this, many modern inpatient wards have become permanently locked, although this is contrary to the current Mental Health Act Code of Practice. A survey of London wards in 2001 found 25% to be permanently locked(Bowers et al. 2002), and by 2005 a national survey found 'frequent' use of door locking on 37% of inpatient psychiatric wards(Garcia et al. 2005). Similar levels of door locking were found in a one-day census investigation in five European countries (Austria, Hungary, Romania, Slovakia, Slovenia). The census forms were filled in for 4191 psychiatric inpatients and 21.4% were treated in a ward with locked doors(Rittmannsberger et al. 2004). This creeping change in operational policy is most likely driven by concerns about patient safety, particularly the risk of a patient absconding and seriously harming themselves or someone else. Over the same period of time there have a number of public inquiries(Sheppard 1996), with considerable adverse media attention given to these rare but unwelcome events.

One consultant using the closed ward system at the moment believes that it might seem like a backwards step in modern psychiatry, but that a carefully planned policy actually results in better patient care(Adams 2000). Other commentators have suggested that England is entering an era of reinstitutionalisation (Priede et al. 2005), because although there is a decrease in psychiatric hospital beds, there is an increase in involuntary admissions, forensic beds, and places in supported housing and the prison population in England.

Despite guidelines from the Department of Health, many acute inpatient units still struggle to define how they operate (Boardman 2005). This is echoed in a recent study where nurses were unable to clearly recall any guidelines or policies available to aid their decision regarding locking the ward door (Ashmore 2008). Mental health service managers are, at present, being forced into taking decisions on door locking policy, without any

modern central guidance, either legislative in terms of a new code of practice to accompany a new mental health act, or an instruction from the Department of Health. Further evidence is urgently needed to guide practice (Bowers et al. 2005b).

1.2 LITERATURE REVIEW METHOD

A search, using a combination of the search terms "open$ door$", "close$ door$", "close$ ward$", '"$lock$ ward$" and "psychiatry", were conducted on EBM Reviews, British Nursing Index (BNI), CINAHL 1982 to 2007, EMBASE Psychiatry 1997 to 2007, International Bibliography of the Social Sciences 1951 to 2007, Ovid MEDLINE(R) 1950 to 2007, and PsycINFO 1806 to 2007, Google, Google Scholar and SAGE Journals Online (History of Psychiatry Journal). The search was narrowed to only English empirical papers concerning locked doors in acute psychiatry. Exclusion criteria included PICU wards, older patient wards, adolescent wards, forensic wards, and non-English language papers. The resulting list of 78 abstracts was then individually sifted. This resulted in a small core of papers from which a few further references on the topic were identified. Six broad categories were recognised from these papers which included preference of staff and patients regarding locked doors, aggressive incidents, institutionalisation, absconding, suicide, substance misuse and safety and security.

1.3 RESULTS

A total of 19 empirical papers were found on studies concerning locked doors in acute inpatients psychiatry. Only seven articles were recent (post - 1999) contributions to the literature on locked doors in inpatient psychiatry (Adams 2000;Ashmore 2003;Deisenhammer et al. 2000;Haglund et al. 2007;Haglund, Von-Knorring, & von-Essen 2006;Haglund & Von Essen 2005;Quirk, Lelliot, & Seale 2006). Nine studies were from North America, five from the UK, three conducted in Sweden, one in Austria and one in Finland.

Nine studies used observations and/or record analysis to investigate reactions regarding the locked door (Adams 2000;Antebi 1967;Coleman 1966;Deisenhammer, DeCol, Honeder, & Hinterhuber 2000;Dumont et al. 1960;Folkard 1960;Niskanen 1974;Quirk, Lelliot, & Seale 2006;Swindall & Molnar 1985). Five studies interviewed patients about staying in an inpatient psychiatric ward with locked doors (Dumont, Daniels, Margolis, Carson, & Ham 1960;Haglund & Von Essen 2005;Quirk, Lelliot, & Seale 2006;Ryan 1962;Wisebord et al. 1958). The first of these also gathered written opinions of staff. Three studies interviewed staff about locked doors in inpatient psychiatric wards (Ashmore 2003;Haglund, Von-Knorring, & von-Essen 2006;Quirk, Lelliot, & Seale 2006). Six studies used a questionnaire to gather data (Adams 2000;Haglund, Van Der Meiden, Von Knorring, & Von Essen 2007;Richmond, Dandridge, & Jones 1991;Sacks, Nininger, & La Torre 1982;Scott 1956;Wake 1961). The first study surveyed patients, three surveyed members of staff, and two surveyed staff as well as

patients. The first study also conducted focus groups with patients to investigate their opinions of a locked door (Adams 2000).

Eleven studies involved patients and six involved members of staff. Sample sizes vary from 11 to 193 staff members and 6 to 166 patients. The majority of patients interviewed were female and suffering from schizophrenia.

1.3.1 Preference of staff and patients regarding a locked door

Three studies investigated patient and staff preferences regarding a locked or unlocked unit. In the first, 85 members of staff and 65 patients in both unlocked and locked units completed a 25-item attitudinal questionnaire regarding locked and unlocked units(Sacks, Nininger, & La Torre 1982). Seventy-one percent of the staff overall preferred an open ward. Amongst the locked units, half of the staff preferred a locked unit and the other half preferred an unlocked unit. The majority (88%) of the staff on the open units preferred an open unit (Sacks, Nininger, & La Torre 1982). Patients seemed less affected by their current ward condition. Sixty-six percent of the patients overall preferred an unlocked ward, and their preference did not show a relationship with their own ward status (Sacks, Nininger, & La Torre 1982).

These results were echoed by the second USA study in which 35 women patients, the majority with schizophrenia, were surveyed after their ward changed from a locked to an unlocked ward(Scott 1956). Although the majority (57%) of them did not notice any change in the ward in any way following the conversion, 63% replied positively when asked specifically if they liked the open ward. None of the patients mentioned increased freedom as a gain from the open ward system (Scott 1956).

In contrast, the last study investigated patient opinions after four UK inpatient wards in an acute psychiatric hospital, reverted to a modified closed ward system in 1998(Adams 2000). Questionnaires were sent out to all discharged patients over a two-month period asking their opinion about the change in door policy. Almost half (48%) indicated that they did not mind the door being locked some of the time and 13% indicated that they felt safer with a locked door. Just over a third (39%) of the discharged patients was worried about the door being locked more often.

Whether patients in the UK were more vigilant about the door status and preferred a locked ward or if patients in the USA were not as affected by the door policy or preferred more liberty is inconclusive. What can be assumed is that patients may have less extreme views about the door policy than staff and that the door policy may not affect patients with the same severity as it affects staff. There was no empirical evidence to indicate how acceptable locking the door is to family and friends.

1.3.2 Aggressive incidents and the locked door

One study focused on aggression in inpatient psychiatric wards, monitoring the incidents of aggressive behaviour in a disturbed ward in the UK during

1959 (Folkard 1960). The experiment stretched over 20 weeks: the first 10 weeks the door was kept locked, and the last 10 weeks the door was opened for the first time. Systematic records were used to compare the number of aggressive incidents in the locked and unlocked phase of the experiment.

Overall, during the locked phase there were 249 aggressive occurrences and during the unlocked phase only 193. This reduction in aggressive incidents coincided with the decrease in actions taken by the staff (from 57 during the locked phase to 46 during the unlocked phase). Staff actions included sedation, E.C.T. or putting the patient to bed. The authors warned that opening the door to a ward was not the only variable influencing aggression. During the second part of the unlocked phase, there was a marked increase of aggressive incidents as well as actions taken by the staff. This increase happened together with the annual leave of both the regular ward sisters. The staffing of the ward may therefore also have an influence on aggressive incidents.

Although this study applied to an old psychiatric regime and the inpatient stay far exceeds the short stay of modern patients, it seemed that the opening of the door could reduce aggression. No other empirical study was found on the subject of door policy and aggressive incidents.

1.3.3 Institutionalisation and the locked door

Institutionalisation, or institutional neurosis (Barton 1976), is a condition where patients living in a psychiatric hospital become apathetic and submissive, partly due to loss of contact with the outside world. Sociologists have also related total institutions to institutionalisation and described a total institution as a place marked by high walls and locked doors (Goffman 1961).

Quirk, Lelliot and Seale (Quirk, Lelliott, & Seale 2004) offered a modern look on the total institution model. Patient observations carried out in three acute psychiatric wards in inner- and outer-London indicated that total institutions of modern times are more permeable than decades ago. Ward membership was temporary for both staff and patients, because of rotations and transfers. Today's patients also maintain constant contact with the outside world via personal mobile phones and permitted leave and institutional identities are less distinct with both staff and patients wearing informal clothes.

More permeable institutions showed little evidence of institutionalisation, but forfeited the "asylum function", so patient experienced continued personal responsibility, e.g. bills and family matters (Quirk, Lelliot, & Seale 2006), and unwanted persons and illegal drugs could enter the hospital more easily. There is very little recent empirical evidence exploring institutionalisation, and even less evidence exploring the link between a locked psychiatric ward and institutionalisation.

1.3.4 Absconding, suicide and the locked door

Three studies reported that the main reason, given by staff, for locking the door was to prevent patients absconding (Adams 2000;Ashmore 2003;Haglund, Van Der Meiden, Von Knorring, & Von Essen 2007). Yet in a large retrospective study of absconding at All Saints Hospital in Birmingham, just under half of all absconds occurred from locked wards (Antebi 1967). Somewhat similarly, Coleman (1966) reports 20% of absconds, and Richmond, Dandridge, and Jones (1991) 21%, at Veterans Hospitals in the US were from locked wards. However Swindall and Molnar (1985) reported that on the opening of a locked ward in 1981, absconds rose from 2.5% of admissions to 7% (Swindall & Molnar 1985).

Two studies refer to whether suicides occurred with in-patients who were on locked or open wards(Deisenhammer, DeCol, Honeder, & Hinterhuber 2000;Niskanen 1974). Both showed that suicides were no more likely to occur with locked ward patients than open ward patients. Although no statistical tests occur in these studies, the authors declare that the proportions of suicides on either type of ward reflect the proportions of admissions to both destinations. However one of the studies showed there were just as many suicides following absconds from the locked wards as the open ones(Niskanen 1974), whereas the other reported that none of the suicides on the locked wards followed an abscond (Deisenhammer, DeCol, Honeder, & Hinterhuber 2000). The former suggests that, in line with other findings, patients manage to abscond from locked wards; the second suggests that the locked door moves the location but does not change the likelihood of a suicide.

Whether security measures in inpatient wards increased in modern times or whether patients will abscond at the same rate regardless of the door status is still unclear. These contradictory results could indicate that there might be other reasons why patients succeed in absconding, besides the door status of inpatient wards. More up to date research is needed to investigate absconding with regards to locked doors.

1.3.5 Substance misuse and the locked door

Three studies mentioned a relationship between substance misuse and the locked door. The first was a recent Swedish study, where 193 ward managers completed a questionnaire on reasons why they locked the doors to psychiatric wards (Haglund, Van Der Meiden, Von Knorring, & Von Essen 2007). Fifty four of them believed a locked door prevented illegal substances from entering the ward. A recent UK study questioning 11 nurses on reasons why they lock the door, also indicated that nurses lock the door to limit the amount of substance misuse in the ward (Ashmore 2008). Replies to an more dated questionnaire surveying 483 open Canadian psychiatric wards, indicated that smuggling of alcohol and drugs did not increase with the opening of ward doors (Wake 1961).

There was no empirical evidence found on substance misuse and a locked door for wards in the UK, although there was evidence that 127 out of 264

(48.9%) patients screened in three psychiatric units, fitted the criteria of current or recent substance misuse (Phillips & Johnson 2003). In this particular study 83% of inner-London psychiatric inpatients with a history of alcohol or drug use interviewed, reported that they continued to use illegal substances in inpatients psychiatric wards during their admission. Whether this happened on open or closed wards was unclear, but it seems that substance abuse is a great problem, especially in London inpatient psychiatric wards.

1.3.6 Safety, security and the locked door

Seven studies mentioned the protective quality of a locked ward door. In four of these studies both staff and patients viewed the locked door as protection against the outside, because it would prevent unwelcome visitors from entering the ward (Ashmore 2003;Haglund, Von-Knorring, & von-Essen 2006;Ryan 1962;Sacks, Nininger, & La Torre 1982).

Two studies reported that patients preferred a locked ward, because it offered them protection against themselves (Sacks, Nininger, & La Torre 1982;Wisebord, Denber, Charatan, & Travis 1958). In the first study, the majority (76%) of patients staying in a locked unit believed it is easier to commit suicide on an unlocked unit and 81% of this group felt that a locked door would enable patients who were unable to control themselves to feel more secure (Sacks, Nininger, & La Torre 1982). In the latter study, one patient experienced the open door as frightening, because in her confused state she could wander out of the ward and get hurt (Wisebord, Denber, Charatan, & Travis 1958).

Three studies mentioned a locked door offers protection to the community(Adams 2000;Haglund, Van Der Meiden, Von Knorring, & Von Essen 2007;Ryan 1962). Staff and patients reported that a locked ward prevents patients hurting someone in the community.

One study noted that a few patients staying on a locked ward were scared that abusive patients might harm them on an open ward, because staff working on an open ward would be less aware. The alleged relaxed atmosphere accompanied by an open ward, made patients feel that staff would not keep such a good eye on everything to prevent patients harming each other(Scott 1956).

It is clear that the protective quality of a locked door is important for both staff and patients. However, whether a locked door actually does protect patients or prevent them from harming themselves, fellow patients, or the community is still unanswered.

1.3.7 Other responses and the locked door

Staff and patients also reported that they felt locked in, "cooped up" or in prison in a locked ward (Adams 2000;Haglund, Van Der Meiden, Von Knorring, & Von Essen 2007;Haglund, Von-Knorring, & von-Essen 2006;Wisebord, Denber, Charatan, & Travis 1958). Some staff indicated that it was easier to control patients with locked doors (Haglund, Van Der

Meiden, Von Knorring, & Von Essen 2007;Haglund, Von-Knorring, & von-Essen 2006;Sacks, Nininger, & La Torre 1982), while others struggled with the conflicting roles of "carer" and "jailer" (Haglund, Von-Knorring, & von-Essen 2006). Some patients preferred this control, because they thought it created calmness in the ward, whereas others felt the locked door emphasised the domineering power of the staff (Haglund & Von Essen 2005). Staff and patients also feel that a locked door creates extra work for staff (Ashmore 2003;Dumont, Daniels, Margolis, Carson, & Ham 1960;Haglund, Von-Knorring, & von-Essen 2006), because they constantly have to lock and unlock the main door to let out informal patients. Staff and patients also reported that a locked door created a non-caring environment and that an open ward had less tension and more life (Haglund & Von Essen 2005;Wisebord, Denber, Charatan, & Travis 1958). Both staff and patients mentioned that a locked door made visitors feel unwelcome, although visitors themselves were not asked.

1.4 Discussion

The literature was inconclusive regarding the effects of a locked door. There is ample non-empirical literature from the 1950s and 1960s reporting beneficial effects of an open door (Koltes 1956;Ryan 1956;Snow 1958). However, a closer look at the literature revealed that a locked door could also have therapeutic value for recovering patients.

It is still unclear whether patients prefer a locked or open ward or if the door status even had a significant effect on their stay. The majority of patients interviewed were suffering from schizophrenia, so it could be that patients with less severe mental illnesses are more aware of and more affected by the door status. North American nurses seemed to prefer an open door, and their opinion were influenced by their current door policy (Sacks, Nininger, & La Torre 1982).

One study suggested that a locked door correlated with increased aggression. Folkard (1960) reported an increase of aggressive incidents with locked ward doors. However, this research was conducted almost fifty years ago, so whether this is applicable to modern psychiatric units is highly debatable.

The locked door has also been blamed, at least in part, for causing patients to become institutionalised (Barton 1956;Goffman 1961). From the literature it is clear that a locked door made some patients feel depressed and dependent (Haglund & Von Essen 2005), but whether the permeable institutions of today could actually cause institutional neurosis, is still controversial.

From this review it is unclear whether a locked door could prevent patients from absconding. Staff believed that a locked door could prevent patients from leaving without permission, but the absconding literature shows that patients abscond even with a locked door (Coleman 1966;Richmond, Dandridge, & Jones 1991), and that locked doors have no impact on in-patient suicide rates (Deisenhammer, DeCol, Honeder, & Hinterhuber 2000).

A locked psychiatric ward door was also linked with substance misuse. Staff felt that a locked door could decrease substance misuse in the ward (Haglund, Van Der Meiden, Von Knorring, & Von Essen 2007); on the other hand it seemed that an open door had no effect on substance misuse at all (Wake 1961). What we do know is that substance misuse is a problem in inner-London psychiatric wards(Phillips & Johnson 2003), but whether a locked door would prevent drug trafficking is unclear.

The results indicated that a locked door made staff and patients feel protected (Haglund, Von-Knorring, & von-Essen 2006;Ryan 1962;Sacks, Nininger, & La Torre 1982). However, there was no evidence to that a locked door actually prevents patients from harming themselves or others. The locked door was also blamed for making staff and patients feel confined, for emphasising the control and power of staff, for increasing workload and creating an uncaring ward atmosphere.

The small amount of literature available, the majority being conducted in North America, showed that there is a huge shortage of research into the effects of locked doors in inpatient psychiatry, both nationally and internationally. Only seven articles were recent (post-1999) contributions, opinions of staff were poorly represented, sample sizes were small and the majority of patients interviewed were females suffering from schizophrenia.

Studies using larger, representative populations are urgently needed to provide a better understanding of the effects of different door policies on inpatient care. The actual impact of the door policy on absconds, substance misuse, suicides or patient safety should also be examined. The relative effects of an entirely locked ward, an entirely open ward, a ward that is sometime locked and a ward with an available PICU should be explored. Study designs that would give a more global and in-depth picture of the effects of different door policies in psychiatric inpatient care would include quasi-experimental design studies, longitudinal studies or cross-sectional studies.

In recent years, psychiatric inpatient wards in the UK has been through several phases, where door were either open or locked. The lack of local, recent research could be one reason why increasingly more modern inpatient wards are permanently locked, although this is contrary to the current Mental Health Act Code of Practice. Before history repeats itself, it is crucial to undertake further empirical research to understand the real impact of a locked ward door. These results will help policy makers and managers decide if it is more beneficial to have permanently closed psychiatric ward or wards with permanently open doors to ensure optimal patient care.

2 THE RESEARCH – AIMS AND METHODS

2.1 AIMS AND OBJECTIVES

2.1.1 To discover if rates of absconding from acute psychiatric wards and drug/alcohol use on those wards, are related to levels and intensity of exit security measures.

2.1.2 To assess the degree of acceptability of door locking to staff, patients and visitors

1 To compare the views of staff, patients and visitors with each other

2 To compare staff and patient views with their views on other containment measures

3 To assess the relationship between ratings of acceptability of door locking and: the practice of door locking; for patients age, gender, ethnicity, and whether legally detained or not; and for nursing staff: qualifications and experience

2.2 METHODS

2.2.1 Design

The study consisted of three separate parts: exploitation of data from a previous large-scale cross sectional study (supplemented with extra data from a telephone interview); a qualitative interview study; and a survey of patients, staff and visitors.

Part one: A cross sectional survey of a six month period on 136 wards was undertaken in 2004-05, known as the City-128 study (Bowers et al. 2007c). That study collected a comprehensive range of data on patients, staff, service, and conflict and containment events, including door locking, absconding, and drug/alcohol use. That data was supplemented in this part of the study by a telephone survey (during early 2006) of the same 136 wards, collecting further data on exit security features in use at the time of the previous data collection.

Part two: Semi-structured interviews were undertaken with patients, staff and visitors on the topic of door locking practices on acute psychiatric wards.

Part three: A survey of staff, patient and visitor views on door locking was undertaken, across the original 136 ward City 128 sample.

2.2.2 Sample

Part one: The sample size was 136 acute NHS psychiatric wards, their patients and staff, geographically situated proximate to three centres (London, Central England, Northern England). Full details of the original power calculation can be found elsewhere (Bowers, Whittington, Nolan, Parkin, Curtis, Bhui, Hackney, Allan, Simpson, & Flood 2007c). 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 (2004-05), for logistical reasons. These same wards were re-approached by telephone during early 2006 for the collection of supplementary data on exit security. By this time three of the original sample wards had closed, leaving a total sample of 133.

Part two: Interviews took place on acute wards within a single NHS Trust across three different hospital sites. Each hospital operated a different door locking policy: permanently locked, permanently open, and locked from time to time at the discretion of the nurse in charge. All qualified nursing staff were asked to participate, and interviews were conducted with the first to volunteer and to have time available to participate. Patients were randomly selected, and staff were then asked if they were fit to be interviewed. If staff agreed, the patient was then approached and asked for consent, and the interview conducted. A small cash payment was made to recognise patients' time contribution. Subject to patients' consent, their visitors were also approached for interview. Signed informed consent was obtained from all participants. All interviews were conducted on the wards by a trained researcher, and were taped and professionally transcribed. Interviews were conducted with 14 staff, 15 patients and 6 visitors during the second half of 2007. Visitors were the most difficult group to recruit, as there were very few (even though we accessed the wards during the evenings and at weekends). The ethical approval obtained required us to first get signed consent from the patient who was being visited, before

asking the visitor to participate, and this further reduced the numbers available to interview.

Part three: Packages of questionnaires were sent to all wards that participated in the previously described City-128 study, during November 2007 (128 wards of the original 136 ward sample could be contacted, were still open and research governance approval could be obtained), with the request that they be distributed to all available and consenting staff, patients and visitors. Completed questionnaires were collected together by staff on the participating ward and returned in a single package. Ward Managers were subsequently contacted by phone and letter to confirm receipt of blank questionnaires, and to encourage participation. Responses were obtained from 61 wards and a total of 1227 questionnaires received by the end of April 2008.

Further details on the samples and response rates are included with the findings.

2.2.3 Data collection and instrumentation

Part one: Full details and copies of the original City-128 data collection instruments can be found in the report (Bowers et al 2007). These included:

- The Patient-staff conflict checklist (PCC-SR) (Bowers, Simpson, & 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.
- 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.
- Staff attitude to difficult patients was assessed using the Attitude to Personality Disorder Questionnaire (APDQ) (Bowers & Allan 2006) assessing staff degree of enjoyment, security, acceptance, enthusiasm and sense of purpose in working with PD patients.

- Ward structure was assessed using the Order and Organisation, Programme Clarity and Staff Control subscales of the Ward Atmosphere Scale (WAS) (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 & Avolio 1995).
- Multidisciplinary team cohesion was assessed using the Team Climate Inventory (TCI) (Anderson & West 1999).
- Burnout was assessed using the Maslach Burnout Inventory (MBI) (Maslach & Jackson 1981).
- Staff and patients were completed the Attitude to Containment Measures Questionnaire (ACMQ) (Bowers 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.

The follow up telephone interview was developed by the research team at City University, with advice from Mr Jim Halliwell, then Senior Architect at the Centre for Healthcare Architecture and design. It was utilised in each case with a qualified nurse who had been working on the participating ward for at least three months. It was made clear to the interviewee that we wanted the questions to be answered as the ward was during City 128 data collection, and that any subsequent changes should be ignored (Appendix 1).

Part two: The interview schedule was developed starting from the ideas of Haglund. A version was then circulated to the collaborators on the project from email feedback. A similar process was undertaken with the research team at City University. This led to a revised version which was then piloted with a staff member, patient representative, and member of the public, before being refined for final use (Appendix 2).

Part three: Drawing upon parts one and two of the study, a questionnaire was devised covering the main areas of potential concern that might exist in relation to locked doors on acute wards (Appendix 3)

2.2.4 Ethical approval

Part one of the study was conducted under the original ethical approval for the City 128 study (Ref. MREC 03/8/085). For part three, a variation to that approval was obtained (Amendment date 11/1/07). For part two, an entirely new ethical approval was obtained (Ref. 07/H0705/58).

3 ABSCONDING AND EXIT SECURITY

3.1 THE SAMPLE

At time of follow up, three of the original 136 wards had closed or significantly changed so as to make retrospective data collection impossible. The telephone survey was conducted with all the remaining 133 wards. This represents one in four of all acute psychiatric wards in England.

The wards covered diverse areas, in come cases serving inner city areas, and others rural. Most provided mixed sex accommodation (73%) with the reminder serving males (13%) or females (14%) only. The mean number of beds on a ward was 21, and the mean number of nursing staff per bed 0.99, with the majority of these (61%) holding a specific qualification in psychiatric nursing. Most wards (48%) had been built in the 1980s and 1990s, with 17% in 2000 or later, 19% in the 1960s and 1970s, and the rest prior to this date. Only 15% of wards had their own seclusion room, although a further 35% had access to a seclusion room on another ward; just over half (54%) had access to an on-site Psychiatric Intensive Care Unit (a secure ward with high staff patient ratios for the management of high risk patients).

3.2 ANALYSIS

We first present descriptive data on the frequency and distribution of absconding rates, door locking practices and exit security features. Univariate relationships between these variables are then explored using Spearman correlations. Principal components analysis and k-means cluster analysis are used to assess if there are underlying dimensions or typologies of exit security. Following presentation of univariate relationships of other variables to absconding frequency, multilevel Poisson regression models of absconding are presented. In order to further explore the differences between wards with different door locking policies, a multinomial logistic regression with door locking status as the dependent variable was conducted, and the results presented. Given the results of the preceding analyses, age of build in relation door locking and exit security was explored using one way analysis of variance. Finally, evidence on the methods by which patients abscond is presented from data collected during the telephone interviews.

3.3 FREQUENCY OF ABSCONDING

Figures 1-3 show the frequency of different types of absconding by shift. Absconding is a rare event with the vast majority of shifts passing without any occurrence.

Figure 1. Histogram by shift of raw incidence of attempting to abscond (uncorrected for ward size or type of shift – a.m., p.m., or night)

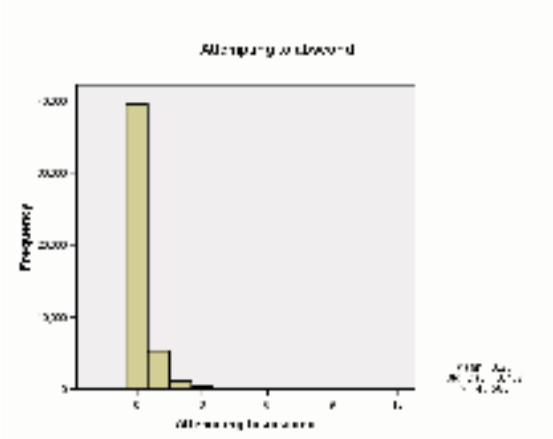


Figure 2. Histogram by shift of raw incidence of absconding missing without permission (uncorrected for ward size or type of shift – a.m., p.m., or night)

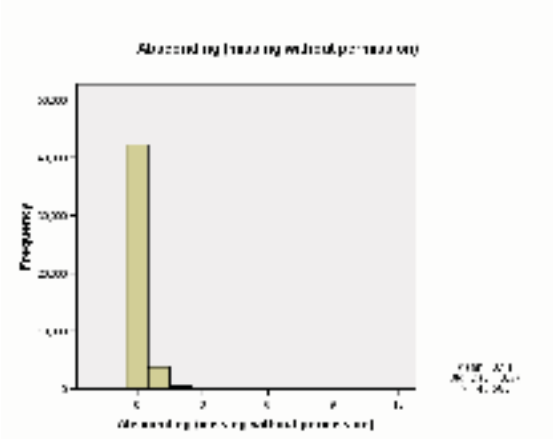
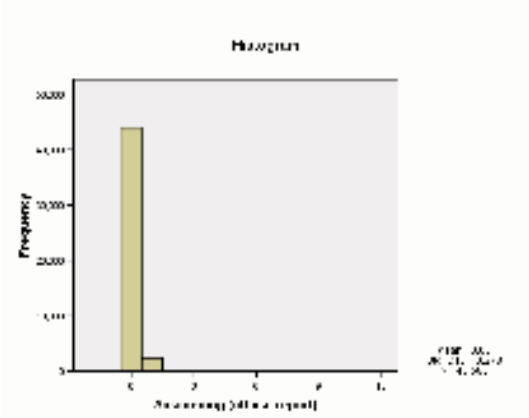


Figure 3. Histogram by shift of raw incidence of absconding officially reported (uncorrected for ward size or type of shift – a.m., p.m., or night)



Figures 4-6 show the distribution of absconding by wards. These are also skewed, with only few wards reporting high levels of absconding. These represent mean daily rates, standardised to 20 bed wards.

Figure 4. Histogram by ward of mean daily rates of attempted absconding (corrected for ward size or type of shift – a.m., p.m., or night)

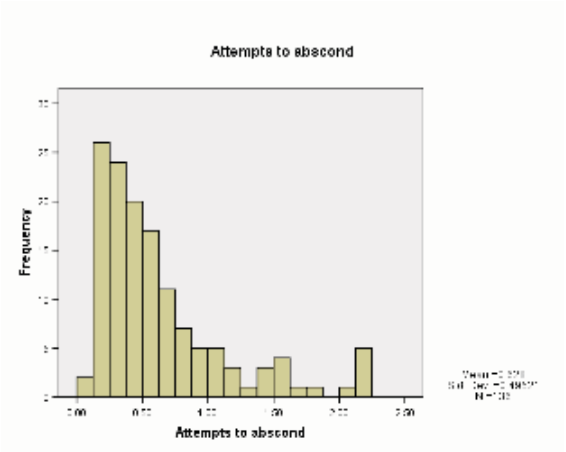


Figure 5. Histogram by ward of mean daily rates of absconding missing without permission (corrected for ward size or type of shift – a.m., p.m., or night)

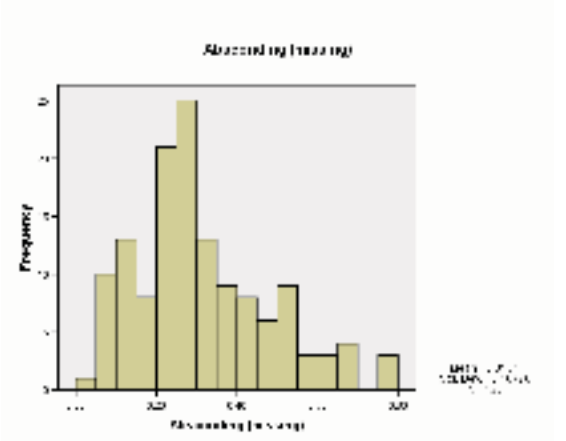
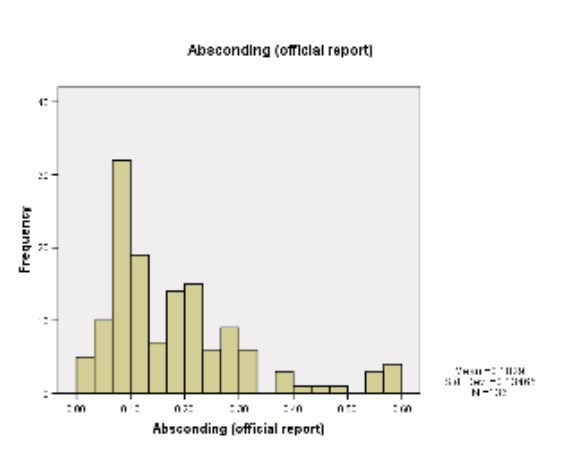


Figure 6. Histogram by ward of mean daily rates of absconding officially reported (corrected for ward size or type of shift – a.m., p.m., or night)



Thus the mean daily total absconding rate (missing without permission plus officially reported) was 0.49. This compares with 0.34 found at baseline for a controlled trial to reduce absconding (Bowers, Alexander, & Gaskell 2003), and 0.33 found during a comprehensive exploratory study of absconding (Bowers et al. 1998). Both studies these studies were restricted to a single locality. A follow up audit project conducted on 15 wards across the UK showed a baseline officially reported absconding rate per day of 0.11, as compared to this study's rate of 0.18. Rates are therefore slightly higher in this study than previously reported, however some part of this differences arises because during the City-128 study respondents where asked to report a new incident of officially reported absconding at the point the official report was made, even if the same abscond had been reported as 'missing without permission' during a previous shift. As we know from previous work (Bowers, Jarrett, Clark, Kiyimba, & McFarlane 1998) that the delay between an actual abscond and the decision to officially report it can be up to 48 hours, this is likely to have resulted in some double counting.

3.4 EXIT SECURITY DESCRIBED

Table 1 summarises the information on exit security for the sample of 136 acute psychiatric wards. It shows that there is a significant amount of security features related to the main exit from the ward, with a third of wards having a double exit doors creating an 'air lock', although not all of these are fitted with an interlock system that only allows one to be unlocked at a time. There is also a significant use of technology, including intercoms, cctv, swipe cards and keys pads. However the majority of wards have exits that automatically unlock in the case of the fire alarm being set off, or fire exits that can be released at will by patients.

Table 1. Frequency of exit security features of ward

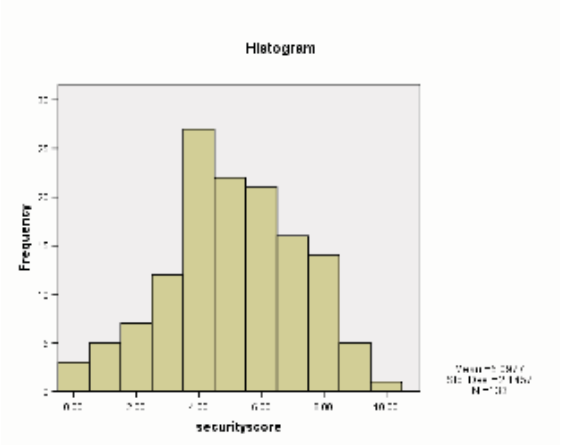
	n	%
Unit entrance		
Swipe card system at unit entrance	38	26
Key pad system at unit entrance	12	8
Intercom system at unit entrance	67	45
Outside ward front door, patient has to pass further locked doors*	38	29
Staffed unit reception desk that person leaving has to pass*	74	56
Is there a gatehouse etc at the exit to the hospital grounds*	25	19
Ward entrance		
Swipe card system at ward entrance	52	35
Key pad system at ward entrance	27	18
Intercom system at ward entrance	64	43
Two separate lockable doors*	43	32
Interlock system*	25	19
Thickness of front door*		
About as thick and solid as an ordinary house front door	19	14
Slightly thicker, like an ordinary hospital door	69	52
Solid in construction, made with strong wood and strong hinges	44	33
Does the door automatically make an audible noise when opened*	33	25
Nursing office situated next to the door*	65	49
Nurse by the door to filter patients leaving*	56	42
CCTV for viewing who is leaving the ward*	27	20
Front door automatically unlocks if fire alarm goes off*	90	68
Fire door that patients can release to get out*	97	73
Potential exits other than front/fire door	48	36
1 potential alternative exit*	22	16
2 potential alternative exits*	11	8
3 potential alternative exits*	7	5
4 or more potential alternative exits*	2	1

Some items were collected during the initial City-128 study, others at follow up, all percentages are of the total response related to that item.

There was little relationship between these different forms of exit security, or in other words, wards that had high levels of one form of exit security did not necessarily tend to have others. The Cronbach alpha of these items was very low, at 0.19, indicating a high degree of inconsistency.

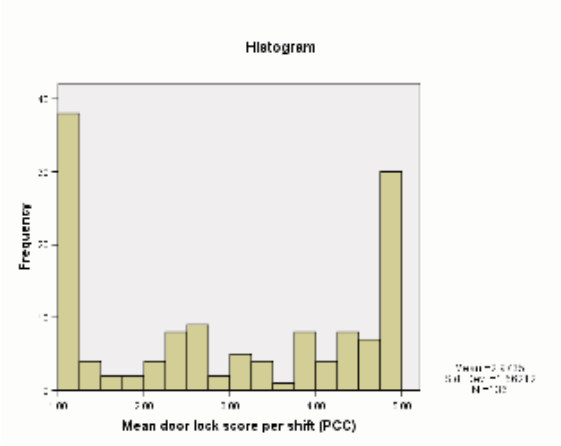
In order to further assess the relationship between exit security and absconding, a 'security score' was created by summing the items indicated by an asterisk in Table 1, after reversing of some scores to ensure all were in the direction of a higher score indicating higher levels of exit security. These items were selected as those most likely to create hurdles or barriers for any patient attempting to abscond. The distribution of this score is displayed in Figure 1. It ranges from 0 – 10, and is non-normal by the Shapiro-Wilk test ($p = 0.009$).

Figure 7. Distribution of combined exit security scores by ward



Whether the ward door was locked, and for what duration was collected for every shift during study via the PCC on a scale of 1 – 5, with 1 representing open for the whole of the shift, and 5 representing locked for the whole of the shift. When aggregated to the level of wards, the mean values of this score showed a U-shaped distribution, as shown in Figure 8.

Figure 8. Distribution of mean door lock scores by ward.



Wards at either end of this distribution were classified as 'permanently open' (n = 46, 34%) and 'permanently locked' (n = 41, 30%), with those in between classified as 'partially open' (n = 49, 36%). The practice of door locking was not related to the combined exit security score at all, with neither the mean door lock score showing correspondence by Spearman correlation (r = -0.037, p = 0.675), nor the categorical door lock classification by one way analysis of variance (F[2, 130] = 0.422, p = 0.657).

3.5 UNIVARIATE RELATIONSHIPS BETWEEN EXIT SECURITY, DOOR LOCKING, AND ABSCONDING

These relationships were tested using Spearman correlations between exit security features and mean daily rates of absconding from the sample wards. The results are displayed in Table 2, showing no significant relationships, save a decrease in absconding attempts on wards where patients can open fire exits.

Table 2. Spearman correlations between absconding rates and exit security features.

	Attempts to abscond		Absconding (missing)		Absconding (official report)	
	r	p	r	p	r	p
Number of front doors and presence of interlock	-0.022	0.801	-0.014	0.870	-0.083	0.342
Thickness of front door	-0.115	0.190	-0.085	0.335	-0.063	0.470
Noise on opening	0.059	0.497	-0.080	0.361	-0.092	0.293
Nursing office next to the door	0.029	0.737	-0.025	0.771	-0.109	0.212
Use of nurses as door guards	0.031	0.720	-0.024	0.786	-0.121	0.167
CCTV for viewing who is leaving the ward	-0.064	0.466	0.038	0.660	0.041	0.640
Front door automatically unlock if fire alarm goes off	-0.053	0.546	-0.027	0.757	0.064	0.465
When outside ward front door, patient has to pass further locked doors	0.109	0.212	0.089	0.309	0.032	0.714
Staffed unit reception desk that person leaving has to pass	-0.018	0.839	-0.078	0.372	-0.066	0.447
Is there a gatehouse etc at the exit to the hospital grounds	-0.105	0.230	0.074	0.396	-0.024	0.783
Fire door that patient's can't release to get out	0.217	0.012	-0.041	0.639	0.019	0.827
Other exits windows	0.079	0.365	0.004	0.966	-0.128	0.143
Other exits doors	0.021	0.814	0.067	0.441	0.079	0.364
Other exits garden	-0.140	0.107	0.039	0.656	-0.034	0.698
Number of other exits	-0.015	0.865	0.003	0.969	-0.031	0.725

Neither did a relationship appear when the combined security score was related to absconding attempts (r = -0.047, p = 0.587), absconding missing (r = -0.025, p = 0.776), and absconding officially reported (r = -0.097, p = 0.267). Tests for curvilinear relationships between the combined security score and absconding were also non-significant. Oneway analysis of variance of the absconding variables by the categorical door lock scores showed higher absconding under the occasionally locked condition, as shown in Table 3.

	Attempts to abscond mean	Absconding (missing) mean	Absconding (official report) mean
Always locked	0.538	0.327	0.181
Partially locked	0.624	0.344	0.218
Never locked	0.713	0.268	0.147
F	1.357	2.757	3.462
df	2,133	2,133	2,133
p	0.261	0.067	0.034

Table 3. Absconding by door lock condition.

Combining the door lock and security scores in a single index by summing them brings no increase in relationships to absconding, as this is also unrelated to absconding attempts (r = -0.163, p = 0.061), absconding missing (r = 0.141, p = 0.334), and absconding officially reported (r = 0.061, p = 0.483).

3.6 FACTOR AND CLUSTER ANALYSES OF EXIT SECURITY ITEMS, AND UNIVARIATE RELATIONSHIPS TO ABSCONDING

It was possible that there were some underlying dimensions or typologies of exit security that were important for absconding, and that these may have been obscured by other relatively unimportant variables amongst those being considered. The individual exit security items were therefore subjected to a cluster and factor analysis.

3.6.1 Principal components analysis

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.533, and was therefore just within the acceptable range, and Bartlett's Test of sphericity was significant, indicating that analysis could proceed. Five factors were identified with Eigenvalues > 1, however the scree plot had no 'elbow', the factors were not readily interpretable, and they were in any case unrelated to the three absconding scores.

3.6.2 Cluster analysis

K-means cluster analysis identified two categories in the security item scores. As with the factors, these were not readily interpretable. The largest divergence between the two clusters was on the presence of a patient releasable fire exit door. However the clusters did not differ in relation to the absconding variables.

3.7 UNIVARIATE RELATIONSHIPS OF ABSCONDING TO OTHER VARIABLES

Full descriptive data on all the study variables are available in a previous report (Bowers, Whittington, Nolan, Parkin, Curtis, Bhui, Hackney, Allan, Simpson, & Flood 2007c). In this section we present the relationship between other study variables and absconding by Spearman correlation. Some of these data were collected are at the level of ward (for example, the proportion of admissions male during the data collection period) and some at the level of individual shifts (for example, the number of incidents of verbal abuse). These estimates are inaccurate to a degree, because they do not take into account the clustering of results by NHS Trust (the 136 wards were nested within 26 Trusts). A full hierarchical multivariate analysis is presented later in this report, and the tables indicate at what level variables were entered, and whether they were subject to transformation, prior to that multivariate 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 5,808 of these admissions, and 4,112 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 4. Descriptive statistics and univariate associations for patient variables

	Absconding attempts		Absconding (missing)		Absconding (official report)			
Variable	r	p	r	p	r	p	Level entered	Entered as z score
Proportion of admissions male	-0.004	0.962	0.204	0.017	0.286	0.001	Ward	Yes
Proportion of admissions with schizophrenia	0.120	0.164	0.362	<0.001	0.333	<0.001	Ward	Yes
Proportion of admissions under 35	0.118	0.173	0.256	0.003	0.192	0.025	Ward	Yes
Proportion of admissions detained under MHA	0.044	0.611	0.234	0.006	0.300	<0.001	Ward	Yes
Proportion of patients admitted for risk of harm to self	0.039	0.651	0.018	0.833	0.060	0.491	Ward	Yes
Proportion of patients admitted for risk of harm to others	0.035	0.686	0.294	0.001	0.298	<0.001	Ward	Yes
Proportion of admissions white	0.014	0.872	-0.264	0.002	-0.151	0.079	Ward	Yes
Proportion of admissions Irish	-0.057	0.511	0.177	0.039	0.170	0.048	Ward	Yes
Porportion of admissions Caribbean	0.021	0.810	0.287	0.001	0.172	0.045	Ward	Yes
Proportion of admissions African	0.095	0.271	0.244	0.004	0.137	0.111	Ward	Yes
Proportion of admissions Asian	0.052	0.551	0.046	0.594	0.043	0.618	Ward	Yes
Proportion of admissions other ethnicity	-0.110	0.201	0.220	0.010	0.065	0.455	Ward	Yes
Index of Multiple Deprivation	0.069	0.428	0.162	0.060	0.210	0.014	Ward	Yes
Social Fragmentation Index	-0.047	0.591	0.102	0.238	0.092	0.289	Ward	Yes
Patient approval of containment	0.008	0.924	-0.209	0.014	-0.131	0.128	Ward	Yes

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 5. Descriptive statistics and univariate associations for service environment variables

	Absconding attempts		Absconding (missing)		Absconding (official report)			
Variable	r	p	r	p	r	p	Level entered	Entered as z score
Admissions during shift	0.038	<0.001	0.025	<0.001	0.016	<0.001	Shift	Yes
Rate of admissions per day	-0.024	0.785	0.134	0.120	0.085	0.327	Ward	Yes
Ward served by crisis intervention team	-0.049	0.571	0.032	0.707	0.049	0.572	Ward	No
Ward served by home treatment team	-0.016	0.854	-0.071	0.411	-0.039	0.652	Ward	No
Ward served by assertive outreach team	-0.126	0.144	-0.011	0.900	0.053	0.537	Ward	No
Ward served by early intervention team	-0.109	0.206	-0.115	0.184	-0.051	0.552	Ward	No
Number of beds (ward size)	0.071	0.410	-0.104	0.229	-0.087	0.316	Ward	Yes
Number of patients with LoS > 3 months	0.034	0.691	-0.046	0.596	0.003	0.973	Ward	Yes
Psychiatric Intensive Care Unit access	-0.081	0.349	-0.175	0.042	-0.039	0.655	Ward	No
Seclusion Room access	-0.128	0.138	-0.037	0.666	-0.015	0.861	Ward	No

Physical environment: Ward managers in conjunction with the project researchers collected a number of details about the physical environment of wards. 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, higher scores representing more complexity and less observability) 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 6. Descriptive statistics and univariate associations for physical environment variables

	Absconding attempts		Absconding (missing)		Absconding (official report)			
Variable	r	p	r	p	r	p	Level entered	Entered as z score
Proportion of beds in single rooms	-0.059	0.495	0.127	0.140	0.079	0.360	Ward	Yes
Windows in doors of single rooms	0.041	0.634	-0.004	0.963	0.023	0.786	Ward	No
Index of Ward Observability	-0.097	0.262	-0.164	0.057	-0.119	0.168	Ward	Yes
Physical environment quality	-0.104	0.227	-0.248	0.004	-0.230	0.007	Ward	Yes

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 7. Descriptive statistics and univariate associations for patient routine variables

Variable	Absconding attempts r	Absconding attempts p	Absconding (missing) r	Absconding (missing) p	Absconding (official report) r	Absconding (official report) p	Level entered	Entered as z score
Community meetings held regularly	0.063	0.466	-0.193	0.024	-0.090	0.297	Ward	No
No. sesssions of planned patient activity/week	-0.141	0.109	-0.037	0.677	0.111	0.208	Ward	Yes

Conflict: Frequencies of these items from the PCC-SR were entered into the analysis: verbal aggression, aggression to objects, aggression to others, self-harm, smoking in ns 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), refused regular medication, refused PRN medication, and demanding PRN medication.

Table 8. Descriptive statistics and univariate associations for conflict variables

Variable	Absconding attempts r	Absconding attempts p	Absconding (missing) r	Absconding (missing) p	Absconding (official report) r	Absconding (official report) p	Level entered	Entered as z score
Verbal aggression	0.201	<0.001	0.072	<0.001	0.055	<0.001	Shift	Yes
Physical aggression against objects	0.161	<0.001	0.052	<0.001	0.039	<0.001	Shift	Yes
Physical aggression against others	0.139	<0.001	0.040	<0.001	0.027	<0.001	Shift	Yes
Self-harm	0.010	0.039	0.009	0.059	0.012	0.011	Shift	Yes
Smoking in non smoking area	0.122	<0.001	0.068	<0.001	0.052	<0.001	Shift	Yes
Refusing to eat	0.113	<0.001	0.037	<0.001	0.030	<0.001	Shift	Yes
Refusing to drink	0.082	<0.001	0.038	<0.001	0.030	<0.001	Shift	Yes
Refusing to attend to personal hygiene	0.138	<0.001	0.059	<0.001	0.053	<0.001	Shift	Yes
Refusing to get out of bed	0.088	<0.001	0.047	<0.001	0.029	<0.001	Shift	Yes
Refusing to go to bed	-0.003	0.485	0.014	0.003	0.017	<0.001	Shift	Yes
Refusing to see workers	0.067	<0.001	0.045	<0.001	0.027	<0.001	Shift	Yes
Alcohol misuse (suspected or confirmed)	0.069	<0.001	0.119	<0.001	0.084	<0.001	Shift	Yes
Substance misuse (suspected or confirmed)	0.062	<0.001	0.091	<0.001	0.066	<0.001	Shift	Yes
Refused regular medication	0.080	<0.001	0.022	<0.001	0.020	<0.001	Shift	Yes
Refused PRN medication	0.125	<0.001	0.052	<0.001	0.030	<0.001	Shift	Yes
Demanding PRN medication	0.084	<0.001	0.048	<0.001	0.030	<0.001	Shift	Yes

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 total exit security score has been described above. 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.

Table 9. Descriptive statistics and univariate associations for containment variables

	Absconding attempts		Absconding (missing)		Absconding (official report)			
Variable	r	p	r	p	r	p	Level entered	Entered as z score
Banned items	0.007	0.933	0.065	0.450	0.137	0.112	Ward	Yes
Searching intensity	-0.020	0.816	0.012	0.887	0.074	0.394	Ward	Yes
Restrictions on patients	0.021	0.812	0.030	0.732	0.113	0.190	Ward	Yes
Drug/Alcohol sensitivity and monitoring	0.152	0.078	0.038	0.656	0.009	0.916	Ward	Yes
Door security	0.016	0.854	0.018	0.833	0.013	0.878	Ward	Yes
Alarms	0.104	0.226	-0.077	0.371	-0.055	0.525	Ward	Yes
Guards	0.071	0.412	-0.154	0.073	-0.055	0.522	Ward	Yes
Exit security score	-0.047	0.587	-0.025	0.776	-0.097	0.267	Ward	Yes
CCTV used on ward	-0.085	0.327	0.032	0.713	0.092	0.287	Ward	No
CCTV used on unit	0.142	0.099	0.016	0.854	-0.078	0.369	Ward	No
PRN medication	0.136	<0.001	0.035	<0.001	0.028	<0.001	Shift	Yes
IM medication (enforced)	0.102	<0.001	0.035	<0.001	0.021	<0.001	Shift	Yes
Sent to PICU or ICA	0.058	<0.001	0.032	<0.001	0.030	<0.001	Shift	Yes
Seclusion	0.078	<0.001	0.019	<0.001	0.020	<0.001	Shift	Yes
Special observation (intermittent)	0.066	<0.001	-0.003	0.499	-0.002	0.682	Shift	Yes
Special observation (constant with engagement)	0.081	<0.001	0.035	<0.001	0.040	<0.001	Shift	Yes
Special observation (constant without engagement)	0.033	<0.001	0.019	<0.001	0.017	<0.001	Shift	Yes
Show of force	0.196	<0.001	0.048	<0.001	0.041	<0.001	Shift	Yes
Manually restrained	0.199	<0.001	0.045	<0.001	0.036	<0.001	Shift	Yes
Time out	0.118	<0.001	0.032	<0.001	0.018	<0.001	Shift	Yes

Table 10. Descriptive statistics and univariate associations for door locking (at shift level)

	Attempts to abscond mean	Absconding (missing) mean	Absconding (official report) mean
Not at all	0.222	0.100	0.058
Less than 1 hour	0.449	0.138	0.068
1 - 3 hours	0.347	0.134	0.089
More than 3 hours	0.573	0.197	0.114
Whole shift	0.181	0.102	0.062
F	104.795	19.061	13.657
df	4,42400	4,42400	4,42400
p	< 0.001	< 0.001	< 0.001

At the shift level significant associations with door locking are apparent, in the direction of greater absconding on shifts where the door is open part of the time. The ward level analysis presented previously also showed a positive association between the occasionally locked condition and absconding.

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 11. Descriptive statistics and univariate associations for staff demographic variables

	Absconding attempts		Absconding (missing)		Absconding (official report)			
Variable	r	p	r	p	r	p	Level entered	Entered as z score
Regular qualified nurses on duty	0.065	<0.001	0.034	<0.001	0.022	<0.001	Shift	Yes
Regular unqualified nurses on duty	0.035	<0.001	0.006	0.235	0.006	0.238	Shift	Yes
Bank/agency qualified nurses on duty	-0.022	<0.001	0.030	<0.001	0.018	<0.001	Shift	Yes
Bank/agency unqualified nurses on duty	0.013	0.007	0.013	0.006	0.029	<0.001	Shift	Yes
Student nurses on duty	0.048	<0.001	0.010	0.029	0.011	0.014	Shift	Yes
Consultant Psychiatrists in post	0.022	0.803	-0.089	0.308	-0.046	0.594	Ward	Yes
Other doctors in post	-0.081	0.349	-0.037	0.669	-0.030	0.733	Ward	Yes
Occupational therapists in post	-0.011	0.896	0.049	0.573	0.128	0.139	Ward	Yes
Clinical psychologists in post	-0.111	0.198	0.060	0.486	-0.101	0.243	Ward	Yes
Number of Cons. Psychiatrists locums	0.200	0.020	0.131	0.128	0.161	0.062	Ward	Yes
Nursing vacancy rate	0.010	0.911	0.091	0.294	0.143	0.096	Ward	Yes
Proportion staff male	0.070	0.421	0.183	0.033	0.177	0.039	Ward	Yes
Proportion staff over 30 years of age	-0.015	0.859	0.042	0.625	-0.065	0.450	Ward	Yes
Proportion of staff white	0.007	0.938	-0.084	0.333	0.066	0.447	Ward	Yes
Proportion of staff Irish	-0.023	0.794	-0.007	0.937	0.072	0.408	Ward	Yes
Proportion of staff African	0.012	0.886	0.131	0.127	0.012	0.888	Ward	Yes
Proportion of staff Caribbean	-0.037	0.665	-0.031	0.718	-0.130	0.131	Ward	Yes
Proportion of staff Asian	-0.004	0.962	0.137	0.113	0.047	0.585	Ward	Yes
Proportion of staff other ethnicity	0.020	0.815	-0.048	0.576	-0.175	0.041	Ward	Yes

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 12. Descriptive statistics and univariate associations for staff group and attitude variables

	Absconding attempts		Absconding (missing)		Absconding (official report)			
Variable	r	p	r	p	r	p	Level entered	Entered as z score
Mean Multifactor Leadership Questionnaire score	0.124	0.153	-0.053	0.541	-0.114	0.190	Ward	Yes
Mean Team Climate Inventory score	0.072	0.407	0.022	0.796	-0.055	0.527	Ward	Yes
Mean Ward Atmosphere Scale score (programme clarity and order and organisation)	-0.140	0.106	-0.103	0.236	-0.182	0.035	Ward	Yes
Ward Atmosphere Scale score (staff control)	0.024	0.783	0.204	0.018	0.128	0.139	Ward	Yes
Attitude to Personality Disorder Scale (total score)	-0.046	0.598	0.107	0.216	-0.056	0.515	Ward	Yes
Mean Maslach Burnout Inventory Score (emotional exhaustion and depersonalisation)	0.053	0.540	0.084	0.329	0.109	0.208	Ward	Yes
Maslach Burnout Inventory Score (personal accomplishment)	0.049	0.572	-0.018	0.839	-0.096	0.266	Ward	Yes
Mean Attitude to Containment Measures Questionnaire	-0.063	0.465	0.061	0.477	0.215	0.012	Ward	Yes

3.8 MULTI-LEVEL MODELS OF ABSCONDING

Multilevel random effects modelling was carried out using MLwiN 2.02 on absconding attempts, absconding (missing) and absconding (officially reported) scores for the shift. Poisson regression was used as this fitted the distribution of scores, and the scores represented counts of incidents. The number of beds on the ward was used as the exposure or offset variable, therefore differences in ward size were accounted for in the models. 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 (1), wards at level 2 and Trusts at level 3. That is shifts were nested within 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 (Ukoumunne et al. 2007).

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 absconding. We therefore present the results of the separate domain analyses, as well as the final complete models.

During modelling, proportion of admissions (and staff) of other ethnicity were excluded as a reference category (as it is fully defined by the other five ethnic categories). When door locking was entered in model as a categorical variable, 'door not locked' was used as the reference category.

In order to elucidate at which levels of the models associations of variables with absconding were impacting, variance was partitioned using method D of Goldstein et al (Goldstein, Browne, & Rasbash 2007). For a small number of variables, this method could not identify the level of association. It should

be noted that variables entered in this analysis at ward level can only show ward or Trust level effects.

Tables 13 – 15 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), the second results column shows the final combined model, and the third indicates the level at which associations occur in the model.

Table 13. Multilevel models of absconding attempts, with incident rate ratios and confidence intervals

	Domain models				Final combined model				Level of effect		
	IRR	Lower 95% C.I.	Upper 95% C.I.	sig.	IRR	Lower 95% C.I.	Upper 95% C.I.	sig.	Trust	Ward	Shift
Patient											
Proportion african*	1.064	1.021	1.109	<0.01							
Service environment											
Number of beds*	0.862	0.838	0.886	<0.001	0.883	0.861	0.906	<0.001		x	
Admissions during shift	1.017	1.009	1.025	<0.001							
Physical environment											
Proportion beds in single rooms*	1.039	1.003	1.076	<0.05							
Index of ward observability*	0.937	0.908	0.967	<0.001	0.974	0.952	0.998	<0.05		x	
Patient routines											
None significant											
Conflict											
Verbal aggression	1.059	1.050	1.067	<0.001	1.045	1.035	1.055	<0.001			x
Aggression to objects	1.021	1.013	1.029	<0.001	1.011	1.003	1.019	<0.01			x
Aggression to others	1.018	1.010	1.026	<0.001							
Smoking in ns area	1.050	1.038	1.063	<0.001	1.036	1.024	1.048	<0.001	x	x	
Refusing to eat	1.016	1.008	1.024	<0.001	1.014	1.004	1.024	<0.01			x
Refusing to wash	1.020	1.010	1.030	<0.001	1.012	1.002	1.022	<0.05			x
Refusing to go to bed	0.979	0.972	0.987	<0.001	0.989	0.979	0.999	<0.05			
Refusing to see workers	1.008	1.000	1.016	<0.05							
Alcohol use	1.011	1.003	1.019	<0.01	1.012	1.004	1.020	<0.01			x
Absconding (missing)	1.041	1.033	1.049	<0.001	1.030	1.022	1.039	<0.001			x
Refusing prn meds	1.028	1.020	1.036	<0.001	1.022	1.014	1.030	<0.001			x
Demanding prn meds	1.019	1.011	1.027	<0.001	1.016	1.008	1.024	<0.001			x
Containment											
Door locked < 1 hr	1.217	1.143	1.295	<0.001	1.194	1.121	1.271	<0.001			x
Door locked 1-3 hrs	1.202	1.145	1.262	<0.001	1.174	1.117	1.232	<0.001			x
Door locked more than three hours	1.230	1.157	1.307	<0.001	1.188	1.118	1.262	<0.001			x
Door locked full shift	0.986	0.958	1.016	ns	1.000	0.971	1.030	ns			
PRN medication	1.029	1.019	1.040	<0.001	1.015	1.005	1.025	<0.001			x
Sent to PICU	1.009	1.001	1.017	<0.05							
Intermittent special observation	1.019	1.007	1.031	<0.01	1.013	1.001	1.025	<0.05			x
Special observation (continuous with engagement)	1.026	1.016	1.036	<0.001	1.018	1.008	1.028	<0.001			x
Show of force	1.047	1.041	1.053	<0.001	1.027	1.021	1.033	<0.001			x
Physically restrained	1.037	1.031	1.043	<0.001	1.029	1.023	1.035	<0.001			x
Time out	1.022	1.014	1.030	<0.001	1.014	1.006	1.022	<0.001			x
Staff demographics											
Qualified staff on duty	1.062	1.051	1.072	<0.001	1.030	1.020	1.041	<0.001			x
Unqaulified staff on duty	1.027	1.017	1.037	<0.001	1.013	1.003	1.023	<0.05			x
Bank and agency qualified staff	1.013	1.003	1.023	<0.01							
Bank/agency unqualified staff on duty	1.022	1.012	1.032	<0.001							
Student nurses	1.011	1.003	1.019	<0.05							
Staff group											
None significant											

*Variables entered at ward level

Table 14. Multilevel models of absconding (missing), with incident rate ratios and confidence intervals

	Domain models				Final combined model				Level of effect		
	IRR	Lower 95% C.I.	Upper 95% C.I.	sig.	IRR	Lower 95% C.I.	Upper 95% C.I.	sig.	Trust	Ward	Shift
Patient											
Proportion schizophrenia*	1.160	1.039	1.294	<0.01	1.140	1.052	1.235	<0.05	x		
Proportion white*	0.856	0.752	0.974	<0.01							
Service environment											
Admissions during shift	1.053	1.025	1.083	<0.001							
Physical environment											
Environment quality*	0.827	0.744	0.919	<0.001	0.876	0.802	0.957	<0.01		x	
Proportion beds in single rooms*	1.137	1.022	1.263	<0.05	1.122	1.025	1.228	<0.01		x	
Index of ward observability*	0.863	0.786	0.948	<0.01	0.881	0.818	0.949	<0.05	x		
Patient routines											
None significant											
Conflict											
Verbal abuse	1.064	1.037	1.091	<0.001	1.063	1.034	1.092	<0.001			x
Refusing to get up	1.043	1.017	1.070	<0.001							
Refusing to see workers	1.031	1.009	1.054	<0.01	1.035	1.013	1.057	<0.01			x
Alcohol use	1.122	1.102	1.142	<0.001	1.151	1.129	1.174	<0.001			x
Drug use	1.043	1.021	1.066	<0.001	1.024	1.002	1.047	<0.05			x
Attempting to abscond	1.131	1.111	1.151	<0.001	1.133	1.113	1.153	<0.001			x
Absconding official report	1.330	1.317	1.343	<0.001	1.332	1.319	1.346	<0.001			x
Refused prn medication	1.041	1.021	1.061	<0.001	1.033	1.010	1.055	<0.01			x
Demanding prn medication	1.078	1.053	1.104	<0.001	1.080	1.053	1.108	<0.001	x		x
Self-harm	1.031	1.009	1.054	<0.01	1.031	1.009	1.054	<0.01			x
Containment											
Door locked < 1 hr	1.247	1.015	1.532	<0.001	1.219	0.994	1.495	ns			
Door locked 1-3 hrs	1.197	1.019	1.406	<0.001	1.027	0.878	1.202	ns			
Door locked more than three hours	1.283	1.063	1.548	<0.001	1.141	0.945	1.377	ns			
Door locked full shift	0.679	0.617	0.748	ns	0.694	0.632	0.763	<0.001	x	x	
PRN medication	1.102	1.070	1.135	<0.001							
Enforced IM medication	1.031	1.006	1.058	<0.05	1.036	1.010	1.062	<0.01			x
Sent to PICU	1.031	1.011	1.052	<0.01	1.023	1.001	1.046	<0.05			x
Intermittent special observation	1.070	1.027	1.115	<0.001							
Special observation (continuous with engagement)	1.074	1.042	1.106	<0.001	1.043	1.013	1.074	<0.01			x
Show of force	1.064	1.043	1.085	<0.001							
Physically restrained	1.025	1.003	1.048	<0.001							
Staff demographics											
Qualified staff on duty	1.101	1.065	1.138	<0.001							
Unqaulified staff on duty	1.107	1.075	1.140	<0.001							
Bank/agency unqualified staff on duty	1.070	1.037	1.104	<0.01	1.038	1.004	1.073	<0.05	x		x
Number of consultant psychiatrists who are locums*	1.116	1.006	1.238	<0.001							
Proportion staff male*	1.115	1.013	1.228	<0.05							
Staff group											
WAS staff control*	1.162	1.047	1.289	<0.01							

*Variables entered at ward level

Table 15. Multilevel models of absconding (officially reported), with incident rate ratios and confidence intervals

	Domain models				Final combined model				Level of effect		
	IRR	Lower 95% C.I.	Upper 95% C.I.	sig.	IRR	Lower 95% C.I.	Upper 95% C.I.	sig.	Trust	Ward	Shift
Patient											
Proportion schizophrenia*	1.265	1.101	1.454	<0.01							
Proportion Irish*	1.168	1.028	1.326	<0.05	1.165	1.018	1.334	<0.05		x	
Social fragmentation*	0.742	0.582	0.946	<0.05							
Index of mutliple deprivation*	1.251	1.070	1.463	<0.01	1.301	1.112	1.522	<0.01	x		
Service environment											
Seclusion room on ward*	1.554	1.006	2.402	<0.05	1.542	0.998	2.382	<0.05	x		
Seclusion room on site*	0.963	0.702	1.320	ns	0.893	0.654	1.220	ns			
Admissions during shift	1.046	1.010	1.084	<0.05	1.040	1.002	1.079	<0.05	x		
Physical environment											
Environment quality*	0.810	0.709	0.925	<0.01							
Index of ward observability*	0.881	0.777	0.998	<0.05							
Patient routines											
None significant											
Conflict											
Refusing to eat	1.040	1.000	1.081	<0.05							
Refusing to wash	1.057	1.022	1.092	<0.001	1.055	1.021	1.091	<0.001			x
Alcohol use	1.070	1.045	1.096	<0.001	1.067	1.042	1.093	<0.001	x		x
Attempting to abscond	1.073	1.043	1.102	<0.001	1.049	1.017	1.083	<0.01		x	
Absconding (missing without permission)	1.402	1.380	1.424	<0.001	1.384	1.362	1.406	<0.001		x	
Self-harm	1.031	1.006	1.058	<0.05	1.035	1.007	1.063	<0.05			x
Containment											
door locked < 1 hr	1.221	0.916	1.629	ns	1.067	0.797	1.429	ns			
door locked 1-3 hrs	1.619	1.323	1.982	<0.001	1.428	1.162	1.754	<0.001		x	
Door locked more than three hours	1.657	1.302	2.109	<0.001	1.264	0.983	1.624	ns			
Door locked full shift	0.855	0.754	0.969	<0.05	0.806	0.708	0.917	<0.001		x	
PRN medication	1.087	1.045	1.130	<0.001	1.061	1.020	1.103	<0.01	x		x
Sent to PICU	1.049	1.025	1.074	<0.001	1.033	1.005	1.061	<0.05	x		
Intermittent observation	1.074	1.018	1.132	<0.01	1.057	1.000	1.116	<0.05	x	x	
Special observation (continuous with engagement)	1.089	1.049	1.130	<0.001	1.075	1.033	1.118	<0.01		x	x
Show of force	1.060	0.978	1.148	<0.001							
Staff characteristics											
Bank/agency unqualified staff	1.095	1.053	1.139	<0.001	1.049	1.005	1.095	<0.05			x
Proportion of staff male*	1.220	1.074	1.386	<0.01							
Staff group factors											
Staff ACMQ mean*	1.194	1.047	1.361	<0.01	1.184	1.036	1.353	<0.05			
MBI emotional exhaustion and depersonalisation*	1.146	1.009	1.301	<0.05							

*Variables entered at ward level

Although exit security is not significant in any model, actual absconding (either missing without permission or officially reported) is significantly lower during shifts when the ward door is locked all the time. The scale of this reduction in absconding risk appears to be about 20-40%, in comparison to shifts when the ward door is open the whole time. Absconding is associated with high proportions of admissions with schizophrenia, and with admissions during the shift. There are also indications that absconding is reduced when the physical environment of the ward is of a better quality, although there is also a counterintuitive association between less absconding and more observational difficulty for staff. There are multiple strong associations between absconding and other conflict behaviours, perhaps notably drug and alcohol abuse, and self-harm. There are also positive associations with other containment methods, including intermittent observation. Finally, there appears to be a consistent association of higher bank/agency unqualified staffing numbers with absconding rates.

The full models show that for attempted absconding the relationships with other variables are at predominantly at the shift level, however for both types of actual absconding there are Trust as well as shift level associations.

The relationships between door locking and absconding rates occurred at ward and Trust level, rather than shift. This is likely to be because for many wards and Trusts in the sample, the door was open or locked all the time as a matter of ward or Trust policy.

3.8.1 Multicollinearity

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 subscores, the single score only was used.

Two methods were used to assess whether multicollinearity among the independent variables had influenced our resulting models. Firstly, pairwise correlations of continuous variables in the models were examined. Belsey et al (Belsey, Kuh, & Welsch 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 1 and Neter et al (Neter et al. 1996) indicate that a value exceeding 10 shows unacceptable multicollinearity. Our VIF values are no larger than 1.4 for the attempted absconding model, 1.2 for absconding (missing), and 1.1 for absconding (officially reported).

3.9 A WARD LEVEL MUTLINOMIAL LOGISTIC REGRESSION WITH DOOR LOCKING STATUS AS THE DEPENDENT VARIABLE

In order to further explore the relationship of door locking policies to other variables in the dataset, a multinomial logistic regression was untaken on ward level data with the door locking policy as the dependent variable in three categories: permanently open, partially open, and permanently locked. Although the clustering of results by Trust was controlled for, this analysis is not as powerful as the multilevel models previously reported. Shift level effects are excluded, and associations occurring at the level of Trusts or wards cannot be separately identified. Referring back to Figure 8 shows that there was considerable variation within the part-locked category, with some of these wards being locked a large proportion of the time, and others hardly at all. Treating this as a unitary category is therefore likely to have reduced the level of information in the data. Stepwise backward

selection was used to construct domain levels, then a final combined model, as in the previous analysis. Permanently open was used as the reference category. Because of the method used to control for clustering of results by Trust, beta weights cannot be provided and raw coefficients are therefore reported. All r-squared values reported are adjusted. The resulting models are shown in Table 16.

Table 16. Multinomial logistic regression with door locking status as the dependent variable.

	DOMAIN MODELS							FULL MODEL						
	LOCKED FULL SHIFT			PART-LOCKED				LOCKED FULL SHIFT			PART-LOCKED			
	COEFF	ERROR	SIG	COEFF	ERROR	SIG	R-2	COEFF	ERROR	SIG	COEFF	ERROR	SIG	R-2
Patient														
Proportion sectioned	5.494	2.622	0.036	3.776	2.679	0.159	0.229							0.542
Proportion irish	20.858	7.436	0.005	20.027	6.213	0.001		74.92	17.605	0.000	60.79	18.077	0.001	
Proportion Caribbean	9.345	4.318	0.030	9.867	4.03	0.014		14.903	6.901	0.031	11.746	6.714	0.080	
Proportion Asian	-9.94	3.824	0.009	-17.313	5.468	0.002		-8.356	4.261	0.050	-16.77	4.439	0.000	
Patient ACMQ mean	-0.259	0.076	0.001	-0.121	0.081	0.134								
Index of multiple deprivation	-0.048	0.027	0.074	-0.088	0.032	0.006		-0.165	0.057	0.004	-0.202	0.066	0.002	
Service environment														
PICU available at another hospital	-0.339	0.514	0.510	-0.562	0.486	0.248	0.056	-1.249	1.305	0.339	-1.92	1.228	0.118	
PICU not available	-33.792	0.771	0.000	0.105	0.793	0.895		-41.725	1.701	0.000	-1.101	1.026	0.283	
Physical environment														
Environment quality	-0.153	0.072	0.034	-0.0495	0.078	0.526	0.077							
Proportion beds in single rooms	2.45	0.981	0.013	1.879	0.925	0.042								
Windows in doors of some rooms	-35.572	1.181	0.000	-2.337	1.621	0.149		-41.216	1.097	0.000	-4.28	1.412	0.002	
Windows in doors of no rooms	-1.339	1.685	0.427	-0.494	1.09	0.651		-0.768	1.233	0.533	-0.685	0.881	0.463	
Patient routines														
Community meeting	-2.275	0.852	0.008	-0.22	0.631	0.727	0.026	-3.316	1.218	0.007	-0.189	0.919	0.837	
Conflict														
Aggression to objects	5.023	0.937	0.000	2.27	1.084	0.036	0.199	11.412	3.137	0.000	8.582	3.033	0.005	
Attempted absconding	-2.156	0.784	0.006	-0.974	0.616	0.114		-5.085	1.575	0.001	-3.463	1.449	0.017	
All self-harm	4.591	1.423	0.001	4.503	1.384	0.001		6.464	2.371	0.006	6.914	2.379	0.004	
Containment														
Banned items total	0.139	0.052	0.008	0.098	0.063	0.117	0.133							
Restrictions total	0.177	0.087	0.042	0.131	0.079	0.097								
Drug/alcohol monitoring total	-0.111	0.105	0.295	0.2	0.086	0.020								
Guards total	-0.479	0.475	0.313	-0.656	0.29	0.024								
Door security total	0.664	0.241	0.006	0.302	0.243	0.213		1.151	0.319	0.000	0.512	0.215	0.017	
Security score (exit)	-0.271	0.134	0.043	-0.15	0.124	0.226								
Seclusion	-12.21	5.311	0.022	1.262	5.678	0.226		-29.559	7.565	0.000	-12.328	8.209	0.133	
Staff characteristics														
Actual nursing staff in post	4.917	1.657	0.003	2.491	1.707	0.145	0.120	5.751	2.157	0.008	5.28	1.888	0.005	
Proportion of staff white	-3.802	1.212	0.002	-2.31	1.082	0.033								
Staff group factors														
TCI participant safety	-0.394	1.388	0.005	-3.123	1.011	0.002	0.092	-2.581	1.162	0.026	-2.378	1.087	0.029	
TCI vision	3.32	1.227	0.006	2.963	0.875	0.001								

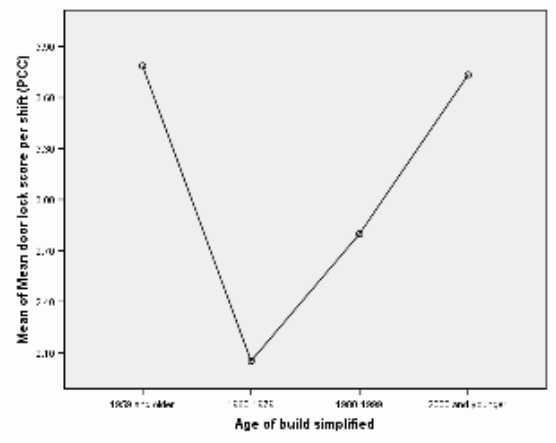
These models demonstrate many significant differences between wards that are locked and unlocked. The patient group on locked and occasionally locked wards are more likely to be Irish and Caribbean, and less likely to be Asian, whereas the level of deprivation of the population served is likely to be lower. Locked wards are more likely to have access to a Psychiatric Intensive Care Unit (PICU), but it is open wards that are more likely to rely on the use of seclusion. Locked wards had a poorer physical environment quality; although there were more single rooms for patients, these were more likely to have windows in the doors to facilitate staff observation. Open wards had more shared dormitory space, and were more likely to have regular community meetings. They also had fewer nursing staff in post per bed, and those staff were more likely to be of white ethnicity.

Self-harm was clearly higher under both locked conditions, confirming previous findings from this dataset using multilevel modelling (Bowers, Whittington, Nolan, Parkin, Curtis, Bhui, Hackney, Allan, Simpson, & Flood 2007c). Higher door security (an index made up from the presence of key pads, or use of swipe cards) was associated with door locking, as might be expected. However there was an indication in this analysis that exit security tended to be lower when the ward door was locked, perhaps indicating that permanently open wards compensate to a degree with greater external exit security. Relationships between door locking and absconding were not clear in this analysis, and should be regarded as less accurate than estimates produced by the multilevel models. However this multinomial model did indicate less absconding attempts on locked wards.

3.10 AGE OF BUILD AND EXIT SECURITY

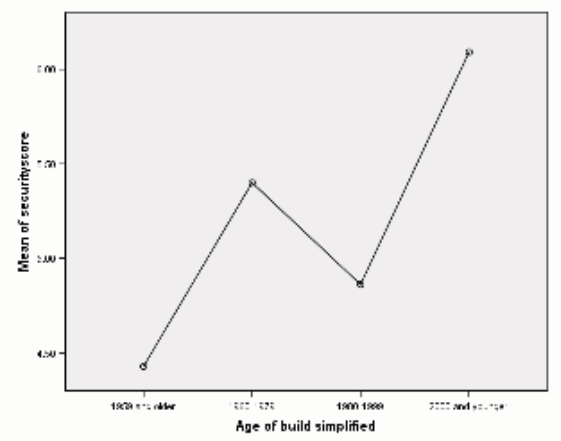
The links between door locking and the presence of single rooms for patients (a relatively recent innovation in psychiatric ward design), and the absence of community meetings (a 1960s and 70s innovation) suggested that there may be a relationship between locking and the age of the unit. This was therefore explored using one way analysis of variance, and the result demonstrated significant differences by year of build ($F[3,132] = 8.217$, $p < 0.001$), with open wards most likely to have been built and opened in the 1960-79 decades (see Figure 9). This suggests that the culture of wards and units are powerfully fixed at the time of opening. Individual buildings may have 'designed in' cultures and practices, with examples being the provision of seclusion rooms, or the provision of day rooms large enough to hold community meetings, all the way through to investment in door and window security. Figure 9 shows that many of the oldest wards have been refurbished to include locked doors, or potentially, to refit them again after they were removed from older buildings during the open door movement of the 1940s and 50s (Jones 1960).

Figure 9. Mean door locking score per shift by period of build.



A similarly interesting pattern is revealed when the total exit security score is subjected to the same analysis (Figure 10). Again there are significant differences by age of build ($F[3, 129] = 2.789$, $p = 0.043$), however in this case we can see that although the wards built during the 60s and 70s tend to be open, they have the second highest levels of other exit security features, perhaps indicating that such security was not ignored, but merely kept discreetly in the background. The graph also indicates a clear rising trend, with the most recently built wards being not just more likely to be locked, but also with higher levels of additional exit security.

Figure 10. Mean exit security score by age of build.



3.11 THE NATURE OF ALTERNATIVE EXITS AND MEANS OF ABSCONDING

Of those wards that had alternative exits, many of these were locked doors (17 wards 13%), open doors (6 wards, 5%), windows (11 wards, 8%), with some of these combining with ward gardens to provide a way out for patients (9 wards, 7%). Patients did use these routes to abscond when the main ward doors were locked, but they also got through the front door itself. When respondents were asked how patients got out when the ward door was locked, they replied via the front door when visitors were entering or leaving (30 wards, 23%) or when others were entering or leaving (22 wards, 16%); or by kicking it open (12 wards, 9%). Others left during escort to (or attendance at) a central canteen (3 wards, 2%) or off ward occupational therapy (1 ward, 1%), or during agreed leave (10 wards, 7%). The alternative exits described were also utilised, with patients absconding via windows (8 wards, 6%); ward garden areas and fences (11 wards, 8%); fire doors (8 wards, 6%); and over roofs (2 wards, 1%). The numbers and percentages given overlap, as some respondents indicated that wards had more than one alternative exit and that patients used more than one different method to escape when the door was locked.

4 ALCOHOL, SUBSTANCE USE AND EXIT SECURITY

4.1 SAMPLE AND ANALYSIS

The same data and approach is used as in the previous chapter.

4.2 FREQUENCY OF ALCOHOL AND SUBSTANCE USE

Figures 11 and 12 show the frequency of alcohol and substance use by shift. Absconding is a rare event with the vast majority of shifts passing without any occurrence.

Figure 11. Histogram by shift of raw incidence of alcohol use (uncorrected for ward size or type of shift – a.m., p.m., or night)

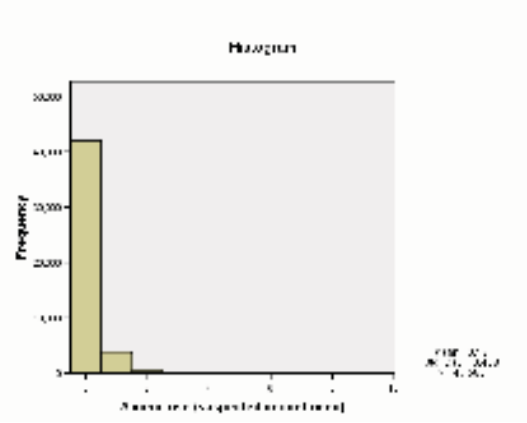
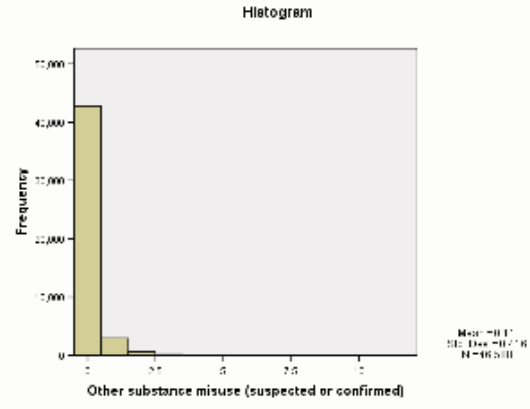


Figure 12. Histogram by shift of raw incidence of other substance use (uncorrected for ward size or type of shift – a.m., p.m., or night)



Figures 13 and 14 show the distribution of alcohol and substance use by wards. These are also skewed, with only few wards reporting high levels of substance use, although there appear to be a small body of outlying high frequency wards at the top of the scale. These represent mean daily rates, standardised to 20 bed wards.

Figure 13. Histogram by ward of mean daily rates of alcohol use (corrected for ward size or type of shift – a.m., p.m., or night)

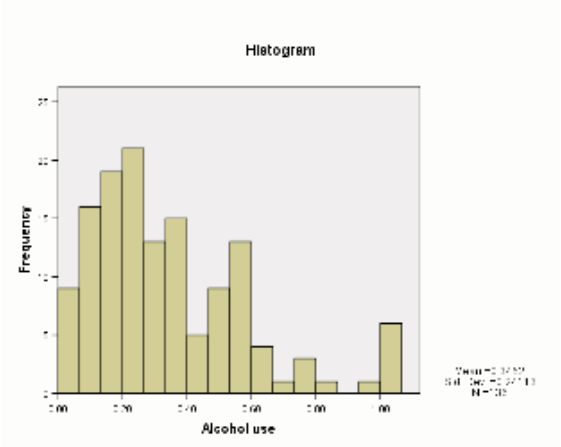
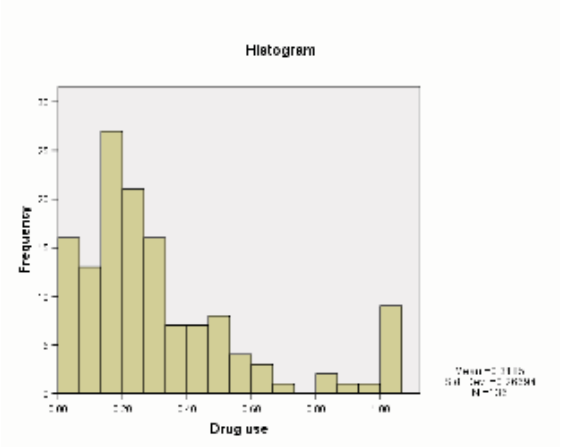


Figure 14. Histogram by ward of mean daily rates of other substance use (corrected for ward size or type of shift – a.m., p.m., or night)



These frequencies represent the numbers of events of suspected or confirmed alcohol or other substance use. Counts of both suspected and confirmed events were grouped together as different wards had different policies regarding testing. However this also means that the measures in part represent nursing perceptions rather than hard physical test data, and may have been affected by expectations, stereotypes, and differing interpretations of patient behaviour. Nevertheless in one study, staff suspicions were confirmed by urine analysis on 60% of occasions (Robinson & Wolkind 1970).

Strikingly, alcohol use is no more common than misuse of other substances, with the latter being only slightly less frequent than the former. Data from other studies suggest that the most commonly used non-alcohol substance is Cannabis (Alterman et al. 1982;Isaac, Isaac, & Holloway 2005;Phillips & Johnson 2003).

4.3 UNIVARIATE RELATIONSHIPS BETWEEN EXIT SECURITY, DOOR LOCKING, AND ALCOHOL/SUBSTANCE USE

These relationships were tested using Spearman correlations between exit security features and mean daily rates of alcohol and substance use from the sample wards. The results are displayed in Table 17, and show no significant relationships.

Table 17. Spearman correlations between alcohol/substance use rates and exit security features.

	Alcohol use		Other substance use	
	r	p	r	p
Number of front doors and presence of interlock	0.039	0.653	-0.024	0.786
Thickness of front door	-0.015	0.861	-0.079	0.370
Noise on opening	-0.102	0.242	-0.003	0.969
Nursing office next to the door	0.095	0.279	0.150	0.084
Use of nurses as door guards	0.130	0.135	-0.027	0.754
CCTV for viewing who is leaving the ward	-0.083	0.345	-0.059	0.497
Front door automatically unlock if fire alarm goes off	0.009	0.921	-0.026	0.765
When outside ward front door, patient has to pass further locked doors	-0.028	0.746	0.066	0.453
Staffed unit reception desk that person leaving has to pass	0.002	0.980	0.050	0.566
Is there a gatehouse etc at the exit to the hospital grounds	-0.112	0.198	0.041	0.636
Fire door that patient's can't release to get out	0.217	0.012	0.220	0.011
Other exits windows	-0.110	0.209	0.025	0.772
Other exits doors	-0.055	0.528	-0.025	0.773
Other exits garden	-0.021	0.806	-0.055	0.527
Number of other exits	0.067	0.442	0.052	0.554

Neither did a relationship appear when the combined security score was related to alcohol use ($r = -0.027$, $p = 0.758$) or other substance use ($r = -0.03$, $p = 0.731$). Oneway analysis of variance of the alcohol and substance use variables by the categorical door lock scores showed no differences, as shown in Table 18

Table 18. Alcohol and substance use by door lock condition.

	Alcohol use mean	Other substance use mean
Always locked	0.310	0.329
Partially locked	0.390	0.340
Never locked	0.329	0.286
F	1.404	0.533
df	2,133	2,133
p	0.249	0.588

Combining the door lock and security scores in a single index by summing is also unrelated to alcohol use ($r = -0.035$, $p = 0.690$) or other substance use ($r = 0.108$, $p = 0.216$).

4.4 UNIVARIATE RELATIONSHIPS BETWEEN DRUG AND ALCOHOL MONITORING, AND ALCOHOL/SUBSTANCE USE

The frequency of different means of monitoring alcohol or other substance use are displayed in Table 19. In addition, fifty wards (37%) reported that they were using police 'sniffer' dogs to search the wards for illegal drugs.

Table 19. Frequency of drug and alcohol monitoring items by ward.

	Never		Sometimes		Always	
	n	%	n	%	n	%
(Illegal drugs) urine or blood testing on admission	3	2.2	79	58.1	54	39.7
Reporting to the police if drugs discovered	5	3.7	73	53.7	58	42.6
(Illegal drugs) urine or blood testing on return from leave	1	0.7	131	96.3	4	2.9
(Illegal drugs) random urine or blood testing	9	6.6	115	84.6	12	8.8
(Illegal drugs) urine or blood testing upon reasonable grounds for suspicion			52	38.2	84	61.8
(Alcohol) breath or blood testing on admission	25	18.4	103	75.7	8	5.9
(Alcohol) breath or blood testing on return from leave	22	16.2	113	83.1	1	0.7
(Alcohol) random breath or blood testing	30	22.1	101	74.3	5	3.7
(Alcohol) breath or blood testing upon reasonable grounds for suspicion	15	11.0	69	50.7	52	38.2

Relationships between drug and alcohol monitoring items and mean daily rates of alcohol and substance use from the sample wards were tested using Spearman correlations. The results are displayed in Table 20, and show some significant relationships.

Table 20. Spearman correlations between alcohol/substance use rates and drug and alcohol monitoring items.

	Alcohol use		Other substance use	
	r	p	r	p
(Illegal drugs) urine or blood testing on admission	-0.003	0.974	0.006	0.945
Reporting to the police if drugs discovered	0.088	0.306	0.047	0.588
(Illegal drugs) urine or blood testing on return from leave	0.010	0.912	0.049	0.573
(Illegal drugs) random urine or blood testing	0.152	0.078	0.126	0.142
(Illegal drugs) urine or blood testing upon reasonable grounds for suspicion	0.050	0.565	0.008	0.925
(Alcohol) breath or blood testing on admission	-0.087	0.313	-0.123	0.155
(Alcohol) breath or blood testing on return from leave	-0.150	0.081	-0.278	0.001
(Alcohol) random breath or blood testing	-0.108	0.210	-0.198	0.021
(Alcohol) breath or blood testing upon reasonable grounds for suspicion	-0.131	0.127	-0.189	0.028
Use of police sniffer dogs to search ward for illegal drugs	0.199	0.020	0.102	0.238

These relationships do not make immediate sense, as screening for alcohol use either randomly or on return from leave seemed to be associated with lower rates of other substance use. However the use of alcohol testing showed greater variability across the sample, with significant numbers of wards reporting they did not use it at all. This may have made relationships easier to see. By comparison, there was little variability in the use of drug testing. The use of 'sniffer' dogs was not associated with less drug use, but was associated with more use of alcohol, perhaps suggesting a degree of substitution.

There was also no relationship between the total drug and alcohol monitoring score and alcohol use ($r = 0.011$, $p = 0.902$) or other substance use ($r = -0.085$, $p = 0.323$).

4.5 UNIVARIATE RELATIONSHIPS OF ALCOHOL AND SUBSTANCE USE TO OTHER VARIABLES

Full descriptive data on all the study variables are available in a previous report (Bowers, Whittington, Nolan, Parkin, Curtis, Bhui, Hackney, Allan, Simpson, & Flood 2007c). In this section we present the relationship between other study variables and alcohol and substance use by spearman correlation. Some of these data were collected are at the level of ward (for example, the proportion of admissions male during the data collection period) and some at the level of individual shifts (for example, the number of incidents of verbal abuse). These estimates are inaccurate to a degree, because they do not take into account the clustering of results by NHS Trust (the 136 wards were nested within 26 Trusts). A full hierarchical multivariate analysis is presented later in this report, and the tables indicate at what level variables were entered, and whether they were subject to transformation, prior to the later multivariate 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 5,808 of these admissions, and 4,112 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 21. Descriptive statistics and univariate associations for patient variables

	Alcohol use		Other substance use			Entered as z
Variable	r	p	r	p	Level entered	score
Proportion of admissions male	0.275	0.001	0.400	<0.001	Ward	Yes
Proportion of admissions with schizophrenia	0.184	0.032	0.480	<0.001	Ward	Yes
Proportion of admissions under 35	0.164	0.057	0.381	<0.001	Ward	Yes
Proportion of admissions detained under MHA	0.014	0.872	0.346	<0.001	Ward	Yes
Proportion of patients admitted for risk of harm to self	0.066	0.447	-0.056	0.514	Ward	Yes
Proportion of patients admitted for risk of harm to others	0.089	0.305	0.405	<0.001	Ward	Yes
Proportion of admissions white	-0.013	0.878	-0.281	0.001	Ward	Yes
Proportion of admissions Irish	0.037	0.665	0.145	0.091	Ward	Yes
Porportion of admissions Caribbean	-0.087	0.316	0.254	0.003	Ward	Yes
Proportion of admissions African	0.037	0.669	0.228	0.008	Ward	Yes
Proportion of admissions Asian	-0.042	0.631	0.109	0.208	Ward	Yes
Proportion of admissions other ethnicity	0.042	0.630	0.239	0.005	Ward	Yes
Index of Multiple Deprivation	0.051	0.558	0.305	<0.001	Ward	Yes
Social Fragmentation Index	0.074	0.391	0.292	0.001	Ward	Yes
Patient approval of containment	-0.011	0.899	-0.233	0.006	Ward	Yes

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 22. Descriptive statistics and univariate associations for service environment variables

Variable	Alcohol use r	Alcohol use p	Other substance use r	Other substance use p	Level entered	Entered as z score
Admissions during shift	0.036	<0.001	0.022	<0.001	Shift	Yes
Rate of admissions per day	0.051	0.552	0.012	0.886	Ward	Yes
Ward served by crisis intervention team	-0.028	0.750	-0.125	0.148	Ward	No
Ward served by home treatment team	-0.067	0.439	0.024	0.782	Ward	No
Ward served by assertive outreach team	-0.113	0.189	-0.195	0.023	Ward	No
Ward served by early intervention team	-0.127	0.139	-0.063	0.470	Ward	No
Number of beds (ward size)	0.003	0.975	-0.009	0.913	Ward	Yes
Number of patients with LoS > 3 months	-0.001	0.989	0.093	0.283	Ward	Yes
Psychiatric Intensive Care Unit access	-0.013	0.882	-0.056	0.514	Ward	No
Seclusion Room access	-0.121	0.161	-0.067	0.439	Ward	No

Physical environment: Ward managers in conjunction with the project researchers collected a number of details about the physical environment of wards. 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, higher scores representing more complexity and less observability) 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 23. Descriptive statistics and univariate associations for physical environment variables

Variable	Alcohol use r	Alcohol use p	Other substance use r	Other substance use p	Level entered	Entered as z score
Proportion of beds in single rooms	0.015	0.863	-0.008	0.922	Ward	Yes
Windows in doors of single rooms	0.174	0.043	-0.002	0.984	Ward	No
Index of Ward Observability	-0.115	0.182	-0.149	0.084	Ward	Yes
Physical environment quality	-0.004	0.959	-0.173	0.044	Ward	Yes

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 24. Descriptive statistics and univariate associations for patient routine variables

Variable	Alcohol use r	Alcohol use p	Other substance use r	Other substance use p	Level entered	Entered as z score
Community meetings held regularly	0.008	0.929	-0.026	0.762	Ward	No
No. sesssions of planned patient activity/week	0.060	0.499	-0.001	0.989	Ward	Yes

Conflict: Frequencies of these items from the PCC-SR were entered into the analysis: verbal aggression, aggression to objects, aggression to others, self-harm, smoking in ns 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), refused regular medication, refused PRN medication, and demanding PRN medication.

Table 25. Descriptive statistics and univariate associations for conflict variables

Variable	Alcohol use r	Alcohol use p	Other substance use r	Other substance use p	Level entered	Entered as z score
Verbal aggression	0.097	<0.001	0.105	<0.001	Shift	Yes
Physical aggression against objects	0.063	<0.001	0.058	<0.001	Shift	Yes
Physical aggression against others	0.054	<0.001	0.050	<0.001	Shift	Yes
Self-harm	0.004	0.389	-0.006	0.223	Shift	Yes
Smoking in non smoking area	0.100	<0.001	0.166	<0.001	Shift	Yes
Refusing to eat	0.032	<0.001	0.046	<0.001	Shift	Yes
Refusing to drink	0.035	<0.001	0.044	<0.001	Shift	Yes
Refusing to attend to personal hygiene	0.049	<0.001	0.104	<0.001	Shift	Yes
Refusing to get out of bed	0.015	0.002	0.053	<0.001	Shift	Yes
Refusing to go to bed	0.039	<0.001	0.061	<0.001	Shift	Yes
Refusing to see workers	0.036	<0.001	0.052	<0.001	Shift	Yes
Attempted absconding	0.069	<0.001	0.062	<0.001	Shift	Yes
Absconding (missing without permission)	0.119	<0.001	0.091	<0.001	Shift	Yes
Absconding (officially reported)	0.084	<0.001	0.066	<0.001	Shift	Yes
Refused regular medication	0.027	<0.001	0.042	<0.001	Shift	Yes
Refused PRN medication	0.041	<0.001	0.069	<0.001	Shift	Yes
Demanding PRN medication	0.071	<0.001	0.081	<0.001	Shift	Yes

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 total exit security score has been described above. 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.

Table 26. Descriptive statistics and univariate associations for containment variables

	Alcohol use		Other substance use			
Variable	r	p	r	p	Level entered	Entered as z score
Banned items	-0.080	0.355	0.022	0.800	Ward	Yes
Searching intensity	-0.059	0.494	-0.034	0.691	Ward	Yes
Restrictions on patients	-0.054	0.533	-0.028	0.744	Ward	Yes
Drug/Alcohol sensitivity and monitoring	0.011	0.902	-0.085	0.323	Ward	Yes
Door security	0.024	0.782	0.095	0.272	Ward	Yes
Alarms	-0.053	0.541	-0.119	0.168	Ward	Yes
Guards	0.053	0.537	0.088	0.307	Ward	Yes
Exit security score	-0.027	0.758	-0.030	0.731	Ward	Yes
CCTV used on ward	-0.081	0.348	-0.098	0.255	Ward	No
CCTV used on unit	-0.032	0.711	0.025	0.772	Ward	No
PRN medication	0.048	<0.001	0.052	<0.001	Shift	Yes
IM medication (enforced)	0.037	<0.001	0.051	<0.001	Shift	Yes
Sent to PICU or ICA	0.026	<0.001	0.028	<0.001	Shift	Yes
Seclusion	0.045	<0.001	0.036	<0.001	Shift	Yes
Special observation (intermittent)	0.015	0.001	0.013	0.005	Shift	Yes
Special observation (constant with engagement)	0.035	<0.001	0.043	<0.001	Shift	Yes
Special observation (constant without engagement)	0.024	<0.001	0.014	0.003	Shift	Yes
Show of force	0.052	<0.001	0.062	<0.001	Shift	Yes
Manually restrained	0.051	<0.001	0.052	<0.001	Shift	Yes
Time out	0.025	<0.001	0.047	<0.001	Shift	Yes

Table 27. Descriptive statistics and univariate associations for door locking (at shift level)

	Alcohol use mean	Other substance use mean
Not at all	0.117	0.101
Less than 1 hour	0.123	0.089
1 - 3 hours	0.113	0.089
More than 3 hours	0.133	0.101
Whole shift	0.117	0.108
F	0.439	1.777
df	4,42400	4,42400
p	0.781	0.130

At the shift level no significant associations with door locking are apparent.

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 28. Descriptive statistics and univariate associations for staff demographic variables

	Alcohol use		Other substance use			
Variable	r	p	r	p	Level entered	Entered as z score
Regular qualified nurses on duty	-0.005	0.275	0.011	0.018	Shift	Yes
Regular unqualified nurses on duty	-0.003	0.541	-0.006	0.207	Shift	Yes
Bank/agency qualified nurses on duty	0.010	0.029	0.017	<0.001	Shift	Yes
Bank/agency unqualified nurses on duty	-0.001	0.775	0.029	<0.001	Shift	Yes
Student nurses on duty	-0.001	0.794	-0.008	0.092	Shift	Yes
Consultant Psychiatrists in post	-0.075	0.392	-0.124	0.153	Ward	Yes
Other doctors in post	-0.069	0.426	0.005	0.958	Ward	Yes
Occupational therapists in post	0.129	0.136	0.197	0.022	Ward	Yes
Clinical psychologists in post	-0.013	0.879	0.069	0.422	Ward	Yes
Number of Cons. Psychiatrists locums	0.156	0.071	0.045	0.604	Ward	Yes
Nursing vacancy rate	-0.076	0.381	0.043	0.623	Ward	Yes
Proportion staff male	0.258	0.002	0.344	<0.001	Ward	Yes
Proportion staff over 30 years of age	0.045	0.603	-0.031	0.719	Ward	Yes
Proportion of staff white	0.072	0.406	-0.069	0.421	Ward	Yes
Proportion of staff Irish	-0.037	0.667	0.065	0.449	Ward	Yes
Proportion of staff African	-0.071	0.409	0.173	0.045	Ward	Yes
Proportion of staff Caribbean	-0.054	0.535	-0.023	0.791	Ward	Yes
Proportion of staff Asian	-0.043	0.621	0.036	0.679	Ward	Yes
Proportion of staff other ethnicity	-0.054	0.529	-0.036	0.674	Ward	Yes

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 29. Descriptive statistics and univariate associations for staff group and attitude variables

Variable	Alcohol use r	Alcohol use p	Other substance use r	Other substance use p	Level entered	Entered as z score
Mean Multifactor Leadership Questionnaire score	0.045	0.607	-0.143	0.098	Ward	Yes
Mean Team Climate Inventory score	-0.010	0.904	-0.140	0.104	Ward	Yes
Mean Ward Atmosphere Scale score (programme clarity and order and organisation)	-0.127	0.143	-0.199	0.021	Ward	Yes
Ward Atmosphere Scale score (staff control)	-0.007	0.931	0.125	0.148	Ward	Yes
Attitude to Personality Disorder Scale (total score)	0.046	0.597	-0.036	0.678	Ward	Yes
Mean Maslach Burnout Inventory Score (emotional exhaustion and depersonalisation)	-0.040	0.642	0.071	0.410	Ward	Yes
Maslach Burnout Inventory Score (personal accomplishment)	0.060	0.486	0.002	0.978	Ward	Yes
Mean Attitude to Containment Measures Questionnaire	0.134	0.121	0.195	0.023	Ward	Yes

4.6 MULTI-LEVEL MODELS OF ALCOHOL AND SUBSTANCE USE

Multilevel random effects modelling was carried out using MLwiN 2.02 on alcohol and other substance use scores for the shift. The method of analysis was exactly the same as that described for absconding in the preceding chapter.

Tables 30 and 31 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), the second results column shows the final combined model, and the third column shows the level at which associations occur.

Table 30. Multilevel models of alcohol use, with incident rate ratios and confidence intervals

	Domain models				Final combined model				Level of effect		
	IRR	Lower 95% C.I.	Upper 95% C.I.	sig.	IRR	Lower 95% C.I.	Upper 95% C.I.	sig.	Trust	Ward	Shift
Patient											
Proportion male*	1.264	1.126	1.419	<0.001							
Service environment											
Seclusion on ward vs no selcusion*	1.645	1.099	2.464	<0.05							
Seclusion on site vs no seclusion*	1.147	0.858	1.533	ns							
Admissions during shift	1.126	1.100	1.153	<0.001	1.087	1.061	1.112	<0.001			x
Physical environment											
Windors in doors of single rooms (some)*	1.548	0.809	2.962	ns	0.592	0.578	0.606	<0.05	x		
Windors in doors of single rooms (none)*	1.611	1.031	2.519	<0.05							
Patient routines											
None significant											
Conflict											
Verbal aggression	1.129	1.098	1.160	<0.001	1.132	1.101	1.164	<0.001	x		
Aggression against objects	1.030	1.008	1.053	<0.01	1.024	1.002	1.047	<0.05	x		
Smoking in no smoking areas	1.108	1.072	1.146	<0.001	1.106	1.070	1.144	<0.001	x		
Refusing to eat	1.029	1.002	1.058	<0.05	1.030	1.003	1.059	<0.05	x		x
Refusing to get up and out of bed	0.942	0.918	0.966	<0.001	0.949	0.924	0.976	<0.001	x		
Refusing to go to bed	1.033	1.010	1.055	<0.01							
Other substance misuse	1.249	1.236	1.261	<0.001	1.245	1.233	1.257	<0.001	x		x
Attempting to abscond	1.030	1.008	1.053	<0.01	1.030	1.008	1.053	<0.01			
Absconding (missing without permission)	1.119	1.099	1.138	<0.001	1.119	1.099	1.138	<0.001			x
Absconding (official report)	1.057	1.036	1.077	<0.001	1.054	1.034	1.075	<0.001			x
Demanding PRN medication	1.070	1.045	1.096	<0.001	1.065	1.040	1.090	<0.001	x		x
Containment											
Given PRN medication	1.089	1.059	1.119	<0.001							
Sent to PICU or ICA	1.028	1.006	1.051	<0.05							
Seclusion	1.037	1.021	1.053	<0.001	1.031	1.013	1.050	<0.001	x		
Special observation (intermittent)	1.099	1.058	1.140	<0.001							
Special observation without engagement	1.036	1.012	1.060	<0.01							
Show of force	1.073	1.050	1.096	<0.001							
Physically restrained	1.040	1.020	1.060	<0.001							
Staff characteristics											
Qualified staff	0.935	0.905	0.967	<0.001	0.922	0.892	0.953	<0.001	x	x	
Bank/agency qual staff	1.067	1.036	1.099	<0.001	1.038	1.006	1.071	<0.05	x		
Number of consultant psychiatrists who are locums*	1.166	1.027	1.325	<0.05							
Proportion staff male*	1.267	1.127	1.426	<0.001	1.195	1.075	1.328	<0.01	x		
Staff group factors											
Staff ACMQ mean*	1.148	1.013	1.301	<0.05							

*Variables entered at ward level

Table 31. Multilevel models of other substance use, with incident rate ratios and confidence intervals

	Domain models				Final combined model				Level of effect		
	IRR	Lower 95% C.I.	Upper 95% C.I.	sig.	IRR	Lower 95% C.I.	Upper 95% C.I.	sig.	Trust	Ward	Shift
Patient											
Proportion male*	1.283	1.114	1.477	<0.001	1.224	1.084	1.382	<0.001			
Proportion schizophrenia*	1.340	1.166	1.541	<0.001	1.239	1.101	1.393	<0.001		x	
Service environment											
Assertive outreach team available*	0.674	0.461	0.983	<0.05							
Admissions during shift*	1.101	1.073	1.129	<0.001	1.060	1.033	1.087	<0.001	x		
Physical environment											
Environment quality*	0.834	0.715	0.971	<0.05							
Patient routines											
None significant											
Conflict											
Verbal aggression	1.091	1.063	1.119	<0.001	1.071	1.044	1.099	<0.001		x	x
Smoking in no smoking area	1.236	1.198	1.276	<0.001	1.224	1.186	1.263	<0.001			x
Refusing to wash	1.084	1.061	1.108	<0.001	1.079	1.056	1.102	<0.001			x
Refusing to go to bed	1.067	1.048	1.086	<0.001	1.064	1.045	1.083	<0.001			x
Refuse to see workers	1.027	1.007	1.048	<0.01	1.023	1.003	1.044	<0.05			x
Alcohol use	1.237	1.225	1.250	<0.001	1.234	1.222	1.246	<0.001	x		x
Absconding missing	1.046	1.022	1.071	<0.001	1.043	1.019	1.068	<0.001			x
Absconding official	1.049	1.027	1.072	<0.001	1.047	1.025	1.070	<0.001			x
Refusing prn medication	1.040	1.018	1.062	<0.001	1.031	1.008	1.056	<0.01			x
Demand prn medication	1.092	1.067	1.118	<0.001	1.085	1.060	1.111	<0.001			x
Containment											
PRN meds	1.090	1.058	1.122	<0.001							
IM meds	1.043	1.021	1.066	<0.001	1.030	1.007	1.055	<0.05			x
Sent to PICU	1.046	1.026	1.067	<0.001	1.038	1.016	1.060	<0.001	x		
Intermittent observation	1.186	1.143	1.232	<0.001	1.068	1.029	1.109	<0.001	x	x	
Show of force	1.074	1.053	1.095	<0.001							
Time out	1.064	1.039	1.089	<0.001	1.030	1.005	1.057	<0.05		x	
Staff characteristics											
Unqualified staff	0.958	0.927	0.990	<0.05							
Bank/agency qual staff	1.054	1.022	1.088	<0.001	1.042	1.010	1.075	<0.01			x
Proportion staff male*	1.336	1.158	1.542	<0.001							
Staff group factors											
Staff ACMQ mean*	1.212	1.046	1.404	<0.05							
WAS order & org/prog. clarity*	0.811	0.700	0.940	<0.01							

*Variables entered at ward level

Exit security was not significant in any model, neither was the status of the main ward door, whether locked or open. Intensity of drug and alcohol monitoring was also unrelated to use. Alcohol and substance use were positively associated with the proportion of male admissions, substance use was further associated with the proportion of admissions suffering from schizophrenia. Both are associated with admissions during the shift. There are multiple strong associations between alcohol/substance use and other conflict behaviours, perhaps notably absconding. Alcohol use was more strongly associated with aggressive behaviour than substance use. Although there were multiple associations with different containment measures for substance use, alcohol use was associated with both the provision of seclusion and its use. There appears to be a consistent association of higher bank/agency staffing numbers with alcohol/substance use.

The full models show that for substance use the relationships with other variables were at predominantly at the shift level, however for alcohol use there were Trust as well as shift level associations.

Further inspection of the variance partitioning tables shows that for alcohol use, the relationship with many of the conflict variables is either mostly or partially at the Trust level. In particular this raises questions about the relationship between alcohol use and rates of aggressive behaviour on the wards. The associations with staffing variables and seclusion use were also at Trust level for alcohol use.

For substance use, there were also a number of relationships at the Trust as well as at the shift level, but these did not include aggression or staffing variables.

4.6.1 Multicollinearity

This issue is discussed in full in the preceding chapter. Our VIF values are no larger than 1.3 for the alcohol use model and 1.2 for the substance use model.

5 INTERVIEWS WITH PATIENTS STAFF AND VISITORS ON LOCKED/OPEN DOORS

5.1 THE SAMPLE

Interviews were conducted with patients, staff and visitors on three acute inpatient psychiatric wards in one NHS Trust. The Trust operated three hospital sites, each of which had differing policies on exit security. One ward from each site was chosen by agreement with site and ward managers to participate in the study.

The 'Open' ward was part of a hospital psychiatric unit opened in 2002. The main ward door was locked to people coming in, who had to ring a bell for attention and to be allowed access to the ward. However anyone in the ward could freely leave by pushing a large, boldly labelled green button beside the door, which released the locks. Had the staff wanted to, they were unable to override this system, as the only way to do so was a central reset which disabled the green release buttons on all the wards on the site. At night this was done, so at night time this ward was locked to patients leaving as well as to visitors wanting to come in. At this unit, during the day there was a staffed reception desk with a receptionist at the main entrance, and the unit door was open.

The 'Partially open' ward was part of a hospital psychiatric unit opened in the 1990s. The main ward door was either open or locked, at the discretion of the nurse in charge of the shift. This meant that the door could be locked for days or even weeks when the staff were concerned about the safety of patients and the risk of absconding. Similarly it could be open for stretches of days and weeks if the staff assessed this as being safe. At this unit during the day there was a reception staffed by security guards, coupled with a locked door preventing free entry. However on the patient side this door could be released by pressing a button.

The 'Locked' ward was part of a brand new unit opened in 2007. The main ward door was always locked to visitors coming in, and to those who wanted to leave. All the staff carried swipe cards that enabled them to release the locks and exit. At this unit, during the day there was a staffed reception desk with a receptionist at the main entrance, and the unit door was also locked.

The aim was to interview five patients, five staff and five visitors on each of these wards, using a predefined semi-structured interview schedule. All qualified nursing staff were asked to participate, and interviews were conducted with the first to volunteer and to have time available to participate. Patients were randomly selected, and staff were then asked if they were fit to be interviewed. If staff agreed, the patient was then approached and asked for consent, and the interview conducted. A small

cash payment was made to recognise patients' time contribution. Subject to patients' consent, their visitors were also approached for interview. Signed informed consent was obtained from all participants. All interviews were conducted on the wards by a trained researcher, and were taped and professionally transcribed.

Interviews were conducted with 14 staff, 15 patients and 6 visitors during the second half of 2007. Visitors were the most difficult group to recruit, as there were very few (even though we accessed the wards during the evenings and at weekends). Some of the visitors were themselves ex-patients, making it harder to distinguish their views as patients from their views as visitors. The ethical approval obtained required us to first get signed consent from the patient who was being visited, before asking the visitor to participate, and this further reduced the numbers available to interview. Numbers across the different settings and types of interviewee are presented in Table 32.

Table 32. Numbers of patients, staff and visitors interviewed on the three sample wards.

	Patients	Staff	Visitors
Open	5	5	2
Partially locked	5	6	4
Locked	5	3	0

Self-defined ethnicities of the subjects are presented in Table 33, and these are broadly representative of staff, patients and residents of the area served by the study NHS Trust.

Table 33. Self defined ethnicity of interviewees.

Ethnicity	N
African	8
Asian	4
Black British	2
Caribbean	2
Irish	3
Other	4
White British	12

The mean age of interviewees was 43 years, and 54% were female. Of the patients interviewed, three were informal (voluntary) and the remaining 12 were detained under the Mental Health Act (involuntary).

5.2 ANALYSIS

Interview transcripts were imported into computer software (NVIVO) for further analysis, which was conducted primarily by the Principal Investigator (LB). The method of analysis was a hybrid approach, utilising the data-driven inductive approach of (Boyatzis 1998) and the deductive a priori template of codes approach (Crabtree & Miller 1999). This approach complemented the research questions by allowing the theoretical concepts as developed by (Bowers, Simpson, Alexander, Ryan, & Carr-Walker 2004;Bowers et al. 2007b;Bowers et al. 2007a) on attitudes to containment to be integral to the process of deductive thematic analysis whilst allowing for themes to emerge direct from the data using inductive coding. Encoding the information organised the data in order to identify and develop themes. A theme was defined as (Boyatzis 1998) as 'a pattern in the information that at minimum describes and organises the possible observations and at maximum interprets aspects of the phenomenon'. In addition to the inductive approach of Boyatzis (1998) analysis of interview transcripts in this study also utilised a template approach (Crabtree & Miller 1999). While this did not involve a predefined template in the form of 'codes' from a 'codebook' to be applied as a means of organising text for subsequent interpretation, early coding categories were heavily dependent upon the previous work of the research team, as was the construction of the interview schedule itself.

A staged approach to analysis was undertaken. Firstly interviews were read in detail, and potential coding categories listed. A small number of interviews were read by the City University Mental Health research team, who made further suggestions. At this stage it became clear that the content of the interviews between the different types of interviewees and wards was to a large extent indistinct. Early plans to analyse patients, staff and visitors separately were thus abandoned as most coding categories were present in all the interviews. Secondly interviews were coded at the finest discrete coding categories. These categories were presented to the team, who made further suggestions about how they related to each other. At this stage, most codes were hierarchically organised under the headings of locked or open. Finally, a second round of analysis took place in which codes were rearranged and consolidated on more generic themes around feelings, behaviour, identities, roles and other issues. At this stage some supplementary coding took place by splitting, sifting or merging of the first round codes. This analysis led to the construction of representative diagrams for staff and patients, whose structure of thinking and relevancies were now perceived to be separately nuanced. Unfortunately visitor responses could not be treated in the same way, as they were insufficient in number, or perhaps in addition were more diverse and less definitive in the views asserted. The results of this analysis were again presented to the City University Mental Health research team, and to the project Steering Group, and feedback received.

5.3 FINDINGS

5.3.1 Knowledge of the door status

The most common way for patients to learn whether the door was locked was by personal discovery. Most patients reported that they knew the door was locked because it had to be unlocked to allow them in on admission (11/15), or because they tried to leave and could not open the door (4/15). None said they had been informed by the staff, although one staff member on the open ward said that giving such information on admission was routine.

> *So I was sent here to X Ward but I noticed it was closed there from the fact that people, if they wanted to get out had to call a member of staff to go and open it with a key. So from that I surmised that was probably, was locked. (Patient-occasionally locked)*

> *Generally locked. [How did you find that out?] Because I couldn't get out once I was brought in. (Patient-locked)*

The complexity involved in describing the precise door status could lead to some confusion for both staff and patients, which was reflected in how they answered interview questions. This confusion and lack of clarity was particularly apparent on the open ward in this study, and was sometimes exploited by staff, who one way or another appear to have allowed some patients to believe that the ward door was locked and prevented them from leaving. On this ward three of the five patients interviewed believed the door was locked, because they had tried to abscond without noticing the large green button that released the door, and had not been subsequently informed about it:

> *Because I tried to go out for a cigarette. I was pushing the door, they ran after me the staff and they tell me there was a smoke room up there and I wasn't allowed out. (Patient-open)*

> *It's open mostly.[How did you find this out?] I didn't find out. I'm just finding out right now. No, the staff don't tell us anything. (Patient-open)*

> *Generally locked. [How did you find this out?] Well, I tried to go home once, and the doctor called me back one of the nurses told me to go over there. I tried to get out once. Yeah. But it was locked. (Patient-open)*

The staff on this ward clearly knew that some patients were ignorant of the door status, so it is hard to avoid the conclusion that staff deliberately concealed the door status from some:

> *But **most** [our emphasis] patients know how to open the door so they just tap on the button and run out. (Staff-open)*

> *Even if the door like now it's not like locked, but then just to see that door, I mean the door closed. You need to press but some patients they don't know that you need to press, it's open, you need to press something so that the door open. But then they complain that they feel like they in a prison. They want to go out. (Staff-open)*

In contrast, there was absolutely no ambiguity on the locked ward, with all patients and staff very clear about the door status.

5.3.2 Absconding and the door

The majority of all respondents (patients 14/15, staff 13/14, visitors 4/6) considered that locking the main ward door prevented patients from leaving without permission:

> *You can't do it no other way I don't think. Because if you leave the door open they'll only pass you, they'll only brush you, push you over and then pass through. They won't even think of it twice. If they're just going to overpower you. (Patient-occasionally locked)*

> *There's no other way to prevent them, because they will walk straight through and that's it ... then they will just walk out. (Staff-occasionally locked)*

> *If they're mentally sick and they're not allowed out then if that's the only way to prevent them getting out then yes by all means lock the door. (Visitor-occasionally locked)*

However more of the staff (9/14) as opposed to patients (3/15) and visitors (3/6) recognised that this method of prevention was far from totally effective. All three groups gave accounts of how patients absconded even when the door was locked:

> *Yes I managed to get all the way home. There on the way to chapel and I ran for it. And the trolleys going down to the canteen were downstairs in security door downstairs. I pushed myself out of the trolley way and I ran all the way to my house. (Patient-locked)*

> *When the door was locked and a patient absconded? Oh patients have kicked the door, yeah. Kicked the door open ... maybe it's happened once in the last year. Yeah. No, if they want to get out, the door is not very strong. It's just held together with two small bolts and very flimsy bolts at the top and at the bottom. (Staff-occasionally locked)*

> *Of course they can get out if they want to. I'm sure they could, I'm sure if you were really determined it's hardly Colditz is it? This is not a police station. I don't know, I haven't, perhaps I'll plot an escape route. I'm not a patient, but I'm sure you'd work out a way. If you wanted to get out. (Visitor-occasionally locked)*

Many subjects from all three groups mentioned the risks associated with absconding, however there were differences of emphasis. The risk of absconded patients harming others was equivalently recognised:

> *Safer for other people with violent people around. Safer for the other people if the violent person is kept behind the doors. (Patient-occasionally locked)*

> *We do have people absconding and then you've got family members ringing up, saying, my relative, who's been aggressive to me, is at my house. (Staff-occasionally locked)*

> *We have to consider people outside and often somebody who's here, they are more ill than they perhaps think they are and if they were able to get outside and they were able to commit a crime. (Visitor-occasionally locked)*

However the risks to others mentioned by staff were more extreme, with two mentioning murder and another serious assault with a knife. Perhaps it was significant that the staff mentioning the more serious risks all worked on the locked ward, however the sample was too small for this association to necessarily be considered meaningful. No patients mentioned risks of self-harm or suicide, and only one visitor referred to this in broad abstract terms, however this risk was better recognised by the staff:

> *Sometimes have some quite highly suicidal people, aren't going to be able to dive out the door when we're busy and maybe harm themselves outside. (Staff-occasionally locked)*

Staff had a clearer view than others of the most serious risks associated with an abscond, however it was patients who most clearly indicated how vulnerable the absconded patient was, with fewer staff and visitors mentioning this:

> *For those patients who are not allowed leave, and who are on medication which is making them very drowsy or unmanageable, for them it is safe, safer to have the door locked. (Patient-locked)*

> *When it's locked. It's safer. Because people are ill and anything could happen to people outside. (Patient-locked)*

The interviews also had sporadic mention of the risks of patients missing medication, or of taking illicit drugs, both of which were seen as causes of mental state deterioration.

A few staff talked about the bureaucracy associated with absconding including filing out forms and reports, contacting community staff, the relatives, and notifying the police. More spoke about a sense of embarrassment due to the appearance of staff incompetence when patients abscond:

> *And you know why, some patients, some families they don't like it when they see whoever is here. Because normally when people abscond they usually go to their houses and so if they are not expecting, if they know that this person is not well and then you see somebody coming, they quickly ring. I mean asking what's going on, like what happened this afternoon with one of the patients, I won't say the name. We phoned the mum, and then the mum was like but she's not allowed out, you know. (Staff-open)*

Yet other spoke about blame following an abscond. Sometimes staff on duty would blame each other, or they could blame themselves, or they felt the potential risk of being blamed by the hospital management or the public if something serious occurred as a result of the abscond:

> *That time they set off, who's at the door? You? Where were you when this one left? And maybe that person is just, look outside or something, and somebody went, or maybe I've been blamed again, to say, where were you when it happened? (Staff-locked)*

> *At the end of the day, you don't want to go thinking, oh it was my fault. And you don't want to put this on even your worst enemy because it's a nightmare. Supposing the person go and kill themselves? Supposing the person go and kill somebody, and all these flashbacks. (Staff-locked)*

> *It's basically my fear is if anybody were to abscond, or to leave the ward without our knowledge, and something happens, something serious happens, I am always wary of the repercussion ... I would say a lot of our managers, would ideally like to see the door open, but I don't know whether this is just idealism because when, if something has happened, if somebody has absconded, when it's get to their attention you can see their anxiety's there. That somebody's left, so. (Staff-occasionally locked)*

About half of the interviewed staff considered that having the door open led to aggressive confrontations around the exit, sometimes in adverse and isolated circumstances. Having the door open could mean that a verbal and physical confrontation occurred when a patient tried to leave, sometimes ending in physical violence by or manual restraint of the patient, which was itself perceived by staff as worse than locking the door:

> *So when somebody who's on section absconds out the door, you've got to run after them and you'll end up in the corridor, you could be by yourself. You mightn't have another member of staff to assist you, so you have to use your communication skills, your de-escalation skills to try and coax the patient back onto the ward. And if you tell them, well you're on section, you can't actually leave the ward, then you'll end up in a violent situation. (Staff-occasionally locked)*

> *So you will start, try to stop them and most of them will not take it kindly. They will be aggressive. I might be hit, I might be kicked, and that's not a nice way to end the day. (Staff-locked)*

> *But if the door wasn't locked, then they would end up being restrained by a three man team, taken to the floor possibly, in a very nasty situation. So it alleviates that part of having to detain a sectioned patient. (Staff-occasionally locked)*

These aspects of an open door policy were not well perceived by the patients and visitors who were interviewed, receiving scant or no mention at all.

5.3.3 Locked doors and patient irritation/aggression

Staff (10/14) and patients (8/15), but less often visitors (2/6) recognised a connection between the door being kept locked, patient anger and non cooperation. The connection was recognised equally across all three wards with their differing approaches to locking/opening the ward door, and by both male and female patients. At the milder end of the spectrum this meant that patients experienced a sense of constraint and frustration from being locked in:

> *It's just a mental binding. (Patient-locked)*

> *And talking to a lot of the patients, you'll find out that one of the main things that really, really frustrates them in hospital is not being able to go out. (Staff-open)*

> *They're not happy about it because their movements are, it's limited and restricted. (Staff-open)*

Even patients who are informal or who have permission to come and go feel this sense of constraint on a locked ward, because they have to ask to be let out, and sometimes they are reluctant to bother staff:

If you know that you are free to go and come as you wish and yet you have to go and ask someone always to open the door and you might not feel inclined to go and ask them at certain times then it feels that, although they say you are free, you are not really, really free. (Patient-occasionally locked)

The sense of restriction leads to complaints directed at staff, bad behaviour, medication refusal, anger and sometimes actual aggression:

Yeah definitely if it's locked always patients will be complaining about it. (Staff-occasionally locked)

Yeah. I've noticed that if the door is closed, and patients are not allowed to go outside, they behave badly. I notice that. (Patient-locked)

I wouldn't mind so much taking the medication, I don't like it, but I would take it if I could be sort of in surroundings that I prefer. (Patient-open)

I don't know, it can be a bit frustrating at some times, it can make you have a little bit of a temper, otherwise I think I've got that under control now. (Patient-open)

Because when the door was locked I didn't have my freedom. So I got aggressive and all that. That was because we're not allowed, I weren't allowed out and I'm used to being out, and they just come and lock the door and that. (Patient-locked)

By contrast, an open door was reported to generate co-operation and better behaviour:

Could be more friendlier, yeah. I would be more friendlier, definitely. Not just friendlier. It could be much more different. Don't get me wrong, I'm, not I am, I don't know what other people are, but I am friendlier with everybody. An open door would make only that much different. I would be more relaxed and patient. (Patient-locked)

Well the advantage is less confrontation between the nurse and the patient because they know it's an open ward, and so that's one good advantage and it puts a, it's more relaxing for everyone when the door is open. (Staff-open)

But I do realise that sometimes when people are very ill they can behave in a very devious way. They can actually look for every angle so that they can escape because they can't bear the curtailment and sometimes I think giving freedom actually leads to better co-operation. (Visitor-open)

5.3.4 Locked doors and patient low self-esteem/mood

The capacity of the locked door to affect patients' views of themselves and their mood was equally recognised by the patients (9/15), staff (7/14) and visitors (4/6), by male and female patients, and by subjects from each of the three wards. However it would also be true to say that this was felt and expressed more keenly by patients, who made more references to it, and in more detail than the other two groups. The locked door engendered a sense of stigma, coupled with shame on the part of patients, and a perception that they were pitied by others:

The point is your locked door, the card is being swiped and instantly the message is going into your head that the person you're seeing at the other end is mad ... There's a security camera and they are pressing a bell and having to wait and then a nurse comes and swipes the card, and you look at the nurse and, so it's just a reminder of the fact that your relative's screws are a bit loose right now. So yes, it's an underlining of the stigma of mental illness. (Patient-locked)

If the door is open, they would see me, instead of thinking of me as a mental patient they could have, thinking of me as a normal patient. (Patient-locked)

I think people probably feel sorry for me. Yes to have got into the situation where I'm trapped behind the doors (Patient-open)

Together with this go feelings of depression and sadness:

It's made me, it's very depressing, very depressing. (Patient-locked)

Miserable. (Patient-locked)

It's the locked door that makes them depressed. (Patient-open)

If the door is locked it could unsettle some patients. Some patients think, I'll never get out, they're locking me in, things like that. (Staff-occasionally locked)

5.3.5 Factors exacerbating patient anger and depression

In addition to the powerful effects of stigma and restriction referred to above, it was apparent that other processes and meanings were feeding patients' feelings of anger and depression. Four of these could be identified from the interviews.

The most prominent of these was that locking the door changed the patient perception of the psychiatric service, the staff and their own identity from hospital-nurse-patient to prison-guard-criminal. These changes in perception were accompanied by changes in the terminology of patients, who talked of being 'arrested', 'charged', 'banged up', 'locked up', 'sentenced', 'cell', 'cage', 'camp', 'imprisoned' by 'warders' and the like. This fed anger and resentment if the status as criminal was rejected, and it fed a sense of depression and isolation if accepted. This change was recognised and reported by all three groups of subjects, in all three settings, and by both voluntary and detained patients:

It's always locked. I feel like a prisoner. All the time. (Patient-locked)

Yeah, I would treat the staff the same if I can. If I can treat them the same I would. But the reason why I wouldn't treat them the same if they locked me in for nothing, and I hadn't done nothing. I'd get a little bit upset. (Patient-locked)

You have to give them permission to leave and it makes me feel like you are some kind of prison officer or police officer in charge of a cell and it's some kind of barrier. (Staff-occasionally locked)

The fact that it's locked gives me the creeps, I don't want to think of my husband being in a bloody prison, and he doesn't need to be, he's not a criminal, he's done nothing wrong. (Visitor-occasionally locked)

This realignment of power led some of the staff to report that locking the door made them feel more in control of the ward. However the patients' view was very different, instead seeing the staff as enjoying that power and the sense of superiority it leant them.

> *I think it's safer when the door is locked, in a sense, like I said, you can control who comes onto the ward and you can control who leaves the ward. (Staff-occasionally locked)*

> *The rest of them are power freaks. You want to hear them come in of a night, you could be sleeping, rattle, rattle the doors, rattle, rattle the door. (Patient-open)*

> *I think they enjoy using their swipes. Because they've got a sense of power. (Patient-locked)*

In response to this, some patients (5/15) adopted a posture of subservience towards staff, rather than anger and aggression, probably feeding their sense of low self-esteem and depression:

> *I'm a little bit apprehensive [when the door is locked] but it doesn't affect me too much. I can be a little bit like, I think about what I'm going to say before I speak. (Patient-occasionally locked)*

> *But you see, when a medication they gave, they're giving me, I'm taking it solely because I want to get out. (Patient-open)*

> *So my behaviour towards staff is very polite, I don't misbehave because I know that I can't get out of there without them (Patient-locked)*

Yet other staff showed greater recognition as to how some patients viewed them, and how this might hinder positive relationships with patients.

> *They call us prison guards. Yeah, they can be more negative towards us, yeah. And comments about the keys and not being, and us being in control, and it's being like being in prison. So we do get comments like that, yeah. They view us more as jailers than anything that could be therapeutic. (Staff-occasionally locked)*

Another process feeding patients' feelings of anger and depression was a claustrophobic sense of lack of access to fresh air. This was mentioned equally by patients (6/15), staff (6/14) and visitors (3/6); however it was strikingly less mentioned by people from the locked ward, probably because that ward had a small secure garden area freely accessible to the patients, whereas the other two wards did not.

> *It's like if you need fresh air and you can't wait until they open the door, you're going to pass out. When all you need is a little fresh air, it's like the windows. You know those little slit windows and how you would go up to open a window. It's like you need. You need to go to stick your face out the window to (respondent takes two breaths) it's like as you breathe in. (Patient-occasionally locked)*

> *Yes, it does because it gives you a sensation of being blocked in and cornered, and boxed in a corner because you can't get in or out of your own free will. (Patient-locked)*

The third factor that accentuated patients' feelings of anger and depression was the perception of the locked door separating and excluding them from the normal, everyday world. Three of the staff respondents argued that locking the door was itself a sign of normality, just the same as you would do at home. However in these cases the staff only referred to the door being locked to prevent outsiders coming in, rather than the reverse. The patients' view was different, to them the locked door symbolised their outcast status, and an open door inclusion in normal life – a perception which was also recognised by one staff member and one visitor:

> *I would prefer open door, definitely, yeah. I think it would make me get better quickly, as well, because it will bring up to face the normality even more quickly. After all, every patient has to go out to face the normality at some, in some point, don't they, so, yeah. (Patient-locked)*

> *If the door was open then all of us would at least feel that within the locality we are, we have open access to do what a normal person does. The locked in version makes everyone, it, become institutionalised very quickly because you just, there's just no way out. (Patient-locked)*

> *I feel they get better quicker when the door is open because then they know that, they feel more relaxed, they go out knowing that they are living a near normal a life as possible where they are not really stopped from going to what they, where they want to go to and do what they want to go and do. (Staff-occasionally locked)*

Finally, for patients the locked door was a symbol of being mistrusted by the staff. This factor was also linked to the nature of the relationships that were possible between staff and patients, with the locked door and its implication of mistrust undermining those relationships:

> *Door was open they have to give us trust and they'll be a relationship going on, not a personal relationship, a patient nurse relationship and they'd learn how to trust us. [Interviewer: And now that the door is locked?] There's no such thing as trust, there's mistrust. (Patient-locked)*

> *I feel it's a little bit one sided. A bit one sided. Everything is one sided. Too much to one side do you know what I mean? There's no trust. There's not enough trust. There's no trust. They've got to lock the door because they've got no trust. (Patient-occasionally locked)*

> *I understand the nature of the ward in terms of the Mental Health Act and all the rest of it, but I just find it an abomination being locked. To me it signifies a level of distrust of both the people coming in and people's likelihood of leaving, which is unwarranted and distrust breeds more distrust in my view. (Visitor-occasionally locked)*

5.3.6 Outsiders coming in: threats and protection

Both patients and staff made reference to the positive value of the locked door in preventing undesirable visitors from entering the ward. Patients made reference to vague senses of threat from or vulnerability to people outside, sometimes of a paranoid nature, which meant that when the door was locked to people coming in, they felt more safe and secure. This was reported by 6/15 patients, recognised by 8/14 staff, and 2/6 visitors.

Well, being locked it's a good idea because you feel safer being inside when it's locked. When it's open you don't feel safe because anybody can walk in. Anybody. Some of the patients in here are very frightened. Of the outside. (Patient-occasionally locked)

I don't like it at all because anybody can walk in and out and you don't know them from, for anything. It should be locked at all times. (Patient-occasionally locked)

A little bit scared and panicking. Because I don't know who might come through the doors. (Patient-open)

The staff perceived the threats posed by outsiders in more specific terms, particularly the easy importation of drugs and alcohol to patients on the ward:

I think they're more contained and also you've always got the element of people who come from the outside, and in these days when there's quite a lot of drug dealing going on. It can keep our patients safer from people slipping in the ward and maybe bringing things in we don't want, bringing in contraband. (Staff-occasionally locked)

There's a lot of people who come, drug dealers, who come, they might know some of the service users and they might come onto the ward and try and get cannabis. (Staff-occasionally locked)

However another member of staff did not consider that locking the door was going to make much difference to this:

I don't think when you open the door it is then people will bring in stuff. Whether you lock it or open it regularly. You see when it is locked they still allow you to bring stuff in, you can bring any stuff. If it is stopped it causes problem for patients. They'll say bring it in. So whether you lock it or not, you're going to have, if there is any affect it is going to be very, very minute, nothing too big. (Staff-occasionally locked)

For this staff member, the problem with the open door was allowing access to visitors who were already drunk or otherwise intoxicated:

They are a risk of visitors who are even drunk, who are taking drugs and they will come into the ward to come and cause problems on the ward. What the patient is not creating for us they come in and are creating the problems on the ward. (Staff-occasionally locked)

However these benefits were not uniformly perceived. One member of staff felt that locking the door blocked the socialising of staff with staff on the unit, and of patients with patients:

Some staff will just walk in, say hi to fellow colleagues and, but you do know the door is always locked they wouldn't want to bother themselves. These are one of the things that can happen. Patients also do just pop in from other ward, but once they know it's locked. It happens like that. (Staff-occasionally locked)

In addition, there were patients (2/15) who thought blocking access to outsiders was a means to keep staff mistreatment of them secret. The ability of the locked door to convey that impression was also recognised by some staff (3/14) and visitors (2/6).

For other patients I would say that sometimes the staff can misbehave at night time because the ward doesn't have a camera so if they were scared with an open door about a relative or someone coming in without asking, then they might not misbehave at night time like what, like even speaking in a harsh voice. Because you will think twice that somebody might come in and observe you. (Patient-locked)

I think for visitors and people from outside it gives a very bad impression because it reminds them of the times when people were locked up and they might even think that we are locking the door to do something to the patients, their relatives or things like that, we don't want them to see what goes on in here. (Staff-occasionally locked)

How do you know? You can't, if the door's open you can come in you can see what's happening. You don't have to announce your presence. You don't have to apologise for being there you just come in. (Visitor-open)

5.3.7 Staff activity in relation to the door

On open wards staff referred to being committed to a process of what can best be called anxious vigilance. They were concerned about preventing absconds because of the risks associated with them, and that meant that their observation of patients and the ward exist was imbued with an underlying anxiety.

Whereas, when the door is not locked, you've just got that element of, right I've got to keep an eye on this person, I've got to keep an eye on this person. So you've got one eye on the door. You've got to sit and you've got to sit somewhere where you can see everything. You can see the patient you're talking to, you can see the door and you can see the patients that are an absconsion risk, so it's quite a juggling act. (Staff-occasionally locked)

Some of them do pace around just to do some exercise but when they're going towards the door, even if you're doing something, you have look where they are going. Oh, is he going out, or is he just walking down the corridor? (Staff-occasionally locked)

But the anxiety amongst staff is high as well if the door is open, so as soon as the patient starts walking you start thinking, oh come back from, so. Probably the patient is even walking but as soon as they go say five inch from the door, you start, your anxiety start, oh you want to go out and you start chasing. (Staff-open)

At times this meant nurses had to be stationed near the door specifically to prevent patients from leaving:

Whereas nurses have to be security officers basically, standing by the door, trying to prevent those who are not supposed to leave from leaving. (Staff-open)

Whether the door is locked or open, well, when the, when it's an open, you have to be more alert. All the time you have to observe patients, especially those on high absconsion risk. You have, someone should be manning the door area 24/7. (Staff-open)

The need to watch patients and the open door meant that staff's attention was divided, even when trying to have attentive and supportive conversations with other patients. If a nurse had to be stationed by the door or allocated to watching the corridor, then the total nursing resource for patient care was significantly depleted.

You would focus more on patients' care rather than focusing on the door. Focus on having one to one with the patient, you give the patient more concentration and listen more because sometimes you are in the corridor standing there, looking for, the patient will come to you and start asking you, but it's like you're not paying attention, you have divided attention, looking at the door and at the same time trying to focus on what the patient is saying. So I think we'd be able to give the patients undivided attention, especially when they approach you when you're standing by the door. (Staff-open)

Just because it's an open ward there should be somebody on the corridor just to watch the door. And we only work like four staff per shift, so which means it will leave maybe one person has to be in the office or two, so it just leave like two staff with patients and we've got like 21 patients on the ward. So it's not really fair really. (Staff-open)

These aspects of having an open door and the impact on staff and workload were not perceived by any of the patients we interviewed, and were only partly appreciated by visitors (2/6). However nearly all of the staff made reference to these issues (13/14). The connection between keeping the door open and nursing workload meant that debates on whether the door should be kept open were entangled with those on staffing levels and the role of nurses. Some staff, patients and visitors argued that having an open door would be easier or more possible with greater staff numbers:

So that's in essence what you have symbolically picked up as a locked door or open door policy, is actually pointing to one to one psychiatric care. An open door in a psychiatric unit is only possible with one to one nursing care, with psychiatric nursing staff who are genuinely good psychiatric nursing staff. (Patient-locked)

I think, it is difficult because I don't believe that patients who are a risk to themselves or the public should be held on an open ward. It's just, it's impossible. Plus they've also cut our staff. We used to have three qualified nurses and one B Grade, one nursing assistant on the ward ... It's an impossible task to do, because the staffing levels (Staff-occasionally locked)

You could interpret it as, oh you've got an inefficient, incompetent and uncaring NHS, where they haven't got the staff to be bothered to keep, to look after people ... if you're not noticing where those people are there's something wrong, and in this ward people are supposed to be under observation, well that would suggest there's not a lot of observation going on so, no, not good enough in my view. There is no real justification other than, inadequate staffing or distrust of people. (Visitor-occasionally locked)

Some staff regarded watching the door as a non-nursing duty, and this was seen as an argument in favour of locking the door:

You had one nurse sitting near the door, watching the door. Not talking to patients, watching the door, making sure that patients who were absconsion risks didn't abscond. It's like a security guard, it's not nursing. (Staff-occasionally locked)

Well yeah, when the doors are locked, when the doors are open, well I feel more of a security officer because whatever I'm doing, I'm watching the door because there's the responsibility for all staff, not only the one or the hourly check but all the staff would be watching the door basically. Even other staff from other discipline, they also will be watching the door. Psychologists, everyone is concentrating on the door. If a patient goes through, oh he's gone out. Is he supposed to go out? Is he, all that commenting. So it's like you feel more of a security officer. (Staff-open)

However locking the door was also far from unproblematic in these respects. Although staff could eliminate one element of their anxious vigilance of patients (the door) they still had to supervise a large number of disturbed and vulnerable patients for other reasons.

Obviously people who are locked or people who are trying to abscond, is if we keep the door locked we will still observe them. We would still keep maintaining the same level of observation. But a locked door is like small, like a back up system, but we will keep observing the patients. (Staff-occasionally locked)

You've got one person doing medication, you've got another person on rapid response. They can go to emergency situations on any other ward, and you can be gone for up to three hours at a time ... You've got a male and female mixed ward, you've got to make sure, you've got to watch everyone, make sure that the males don't go into the female area ... You just, like I said, your eyes have to be everywhere. You want to talk to your patients, you've got to watch that a patient doesn't abscond, that are on section. You've got to watch people who are high risk. You've got maybe somebody, a self harmer or somebody who's suicidal or somebody who's a danger to one of the other patients and maybe they're not at the element where they need one to one nursing, but there's still that risk factor. So you've got to watch them, you've got to talk to your patients, you've got to watch the door, you've got to do what's in [the diary], you've got to, oh, it's just, it's a real balancing act and it's quite difficult. (Staff-occasionally locked)

In addition, locking the door also created the extra work of unlocking and locking the door to let people in and out. That process meant that sometimes people inside and outside were kept waiting for a member of staff to be available, or that whatever task staff were undertaking was interrupted by the need to deal with the door. This aspect of locking the door was only perceived by those staff on the occasionally locked ward. All of them (6/6) mentioned this issue, probably because they had day to day contrasting experience of the effects of opening or locking the ward upon their workload:

It's easier with the doors open, it's much easier, well in a sense, you're not travelling up and down the ward every five minutes to open and close the door. (Staff-occasionally locked)

You have to keep walking up and down to open, to let people in and let people out which distracts me from working with my patients. This is a very busy ward and during the span of a shift you have different sort of people coming in and going out. Also the patients who have to go out, there are a lot of people who are informal and want to go out, so what happens is that you always have to go and open the door for them and when they are coming back you have to go and open the door for them and that can be very distracting. (Staff-occasionally locked)

One, if it was more locked for no justifiable reason, you discover quality times you should have spent doing other things with your clients. You'll be using it to open the door every time any one gets through the door. So this is one major thing, it becomes a time wasting issue. (Staff-occasionally locked)

> *When it's locked it can actually increase our work because it ... because we have to answer the door to everybody. (Staff-occasionally locked)*

This too could make nurses feel like security guards undertaking non nursing duties.

> *Yeah sometimes some of them [visitors] become aggressive, they will be pressing it [the bell] you will know, they will, just continuously and see that you not doing nothing over there and you yourself, am I a doorkeeper, sometimes, occasionally of cause to be well because what I'm doing as at that time is not just a thing I have to just leave. And you can't give a reason that you cannot do, get this thing done quickly because I needed to open the door. So that's just it. (Staff-occasionally locked)*

5.3.8 Other issues

Culture: All interviewees were asked whether open or locked doors could have specific meanings for people from different cultural or ethnic backgrounds. The overwhelming feedback was that being locked in was universally disliked and conveyed similar meanings.

Key carrying: All staff were asked for their feelings about carrying keys. However they all indicated that key carrying was a ubiquitous part of nursing practice, whether or not the door was locked. Keys were carried for the medication trolley, treatment areas, cleaning materials cupboards, bathrooms, etc., and nurses reported that they were very used to this.

Patient hierarchy: Differences in levels of freedom to different patients were reported to be causes of tension. It meant that those who could not go out had to ask those who could to buy them cigarettes etc. from the local shops. Those with greater freedom could also be objects of jealous feelings from patients restricted to the ward, who might see them as staff favourites. Meanwhile those with such freedoms could look down on and resent those whose behaviour required the door to be locked (on a partial locked wards). However most of these tensions could be present whether or not the ward door was physically locked, because there are always some patients who are legally restricted to the ward.

Partial lock specific meanings: On wards that were sometimes locked and sometimes not, the status of the door conveyed a powerful message to staff coming on duty. If locked, they knew the ward was disturbed with some difficult to manage patients, hence they were already psychologically preparing themselves (possibly adding to the sense of tension on the ward). If open, they could relax, knowing that their shift was likely to be more pleasant and less marred by frightening confrontations with disturbed patients.

6 THE QUESTIONNAIRE SURVEY

6.1 THE SAMPLE

Questionnaires were sent out to 128 acute inpatient psychiatric wards in North West England, Central England and London. The list was derived from a random sample of acute psychiatric wards (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) used in the City 128 study during 2004-2005.

Each ward was sent a pack of questionnaires and asked to provide a minimum of 30 completed questionnaires (10 completed by staff, 10 by patients and by visitors). For staff, all nursing staff were asked to complete a questionnaire; for patients and visitors, staff were asked to distribute and collect as many questionnaires as possible from all patients and visitors. Questionnaires were returned during a 19 week period (October 2007 – April 2008). Regular contact was maintained with each participating ward via telephone calls and follow-up letters.

6.2 INSTRUMENT

Drawing on the previous work of Haglund (Haglund, Van Der Meiden, Von Knorring, & Von Essen 2007;Haglund, Von-Knorring, & von-Essen 2006;Haglund & Von Essen 2005) and advised by her, a questionnaire was constructed from relevant categories and statements. All statements were to be rated one five-point Likert scales from strongly agree to strongly disagree. In addition, parallel versions of questions from the Attitude to Containment Methods Questionnaire were included (Bowers, Simpson, Alexander, Ryan, & Carr-Walker 2004), so that ratings of the acceptability, efficacy, safety etc. of the locked door could be compared to previous large datasets of patient and staff parallel ratings of other containment methods, such as seclusion, manual restraint, coerced medication, etc.

The first part of the questionnaire asked the participant how frequently the ward door was locked to patients leaving during the day and during the night, with options of All of the time, Most of the time, About half of the time, Some of the time, Never and I don't know. The second section of the questionnaire included 34 items regarding acceptability of locking the door of an acute psychiatric inpatients ward, with 18 items regarding the effects of locking the door on patients, 7 items on the effects of locking the door on staff, the Attitude to Containments Measures Questionnaire (ACMQ) (6 items) and 3 items regarding the effects of locking the door on people coming into the ward. A copy of the questionnaire can be found in Appendix 3.

A few demographic questions followed (gender, age and ethnicity) with a question asking participants to indicate if they were a member of staff, a patient or a visitor. Additionally, there were separate sections for patients, visitor and staff. Patients were asked how many times they have been admitted to a psychiatric hospital, if they were presently detained under the Mental Health Act and if they had any previous detainments under the Mental Health Act. Visitors were asked how many times they have visited someone (not just the person they were visiting at the moment) on a psychiatric ward (1-5 times, 6-10 times or 10 and more times). The staff section asked staff to indicate their discipline (nurse, health care assistant, doctor, occupational therapist, psychologist or other) and their years of experience (including training). Lastly there was an open ended question for any comments the participant would like to make about the door being locked or unlocked.

6.3 ANALYSIS

All the questionnaires were entered onto a 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 (two different marks for the same item). Data were transferred to an SPSS file for analysis and underwent a further screening to check and correct errors.

Following initial exploration of the data and missing value analysis, response rates and the demography of subjects were summarised using descriptive statistics. The responses of patients, staff and visitors were compared using descriptive statistics and analysis of variance, and the different distributions in responses from the three groups compared. Ratings parallel to previously collected ACMQ data were described and compared to previous datasets.

The underlying structure of responses was explored using Principal Components Analysis. Factor scores were then contrasted across different door locking conditions, and compared to subjects other characteristics utilising either Spearman correlations or analysis of variance.

6.4 FINDINGS

6.4.1 Response rates

Sixty-one psychiatric inpatient wards participated in the study, and the rest returned no questionnaires or closed down before or during the data collection phase. The final number returned was 1227: 638 questionnaires completed by staff, 393 by patients and 168 by visitors (see Table 34). A few (28) participants did not indicate whether they were a member of staff, patient or visitor and there were no indication on the questionnaire to which group they belonged.

Table 34. Descriptive statistics for number of questionnaires obtained per ward and per group.

	Wards	Staff	Patients	Visitors	Unknown
N	61	638	393	168	28
Mean	9.66	10.46	6.89	4.42	1.56
Std. Deviation	12.21	4.60	4.14	4.14	0.86
Min	1	1	1	1	1
Max	57	26	23	12	4

For wards making a response, the mean number of questionnaires returned was 9.66 (std. deviation = 12.21) (see Table 34). On average staff returned the most questionnaires (mean = 10.46, std. deviation = 4.60), patients a little less (mean = 6.89, std. deviation = 4.14) and visitors the least (mean = 4.42, std. deviation = 4.14). From conversations with the different ward managers it became clear that visitors were the most difficult group to recruit, as there were very few visitors visiting the wards. The majority of the participating wards were locked most of the time with 42.5% locked all of the time during the day (see Table 35) and 61.0% locked all of the time at night (see Table 36).

Table 35. Frequency of door locking during the day.

	Frequency	Percent	Valid Percent	Cumulative Percent
Never	303	24.7	26.4	26.4
Some of the time	155	12.6	13.5	39.9
About half of the time	34	2.8	3.0	42.9
Most of the time	135	11.0	11.8	54.6
All of the time	521	42.5	45.4	100
Total	1148	93.6	100	
Missing	79	6.4		
Total	1227	100		

Table 36. Frequency of door locking during the night.

	Frequency	Percent	Valid Percent	Cumulative Percent
Never	196	16.0	18.3	18.3
Some of the time	39	3.2	3.6	21.9
About half of the time	17	1.4	1.6	23.5
Most of the time	73	5.9	6.8	30.3
All of the time	748	61.0	69.7	100
Total	1073	87.4	100	
Missing	154	12.6		
Total	1227	100		

A full missing values analysis was conducted, and between 5 and 12% of responses per item were found to be missing. No pattern of missing responses was apparent, except that some respondents ceased completing the questionnaire at varying points in the middle. As no evidence of systematic bias was evident, no cases were excluded from the analysis.

6.4.2 Demographic data

Frequency statistics were calculated for each demographic variable. The majority (56.10%) of participants were female (see Table 37) with an average age between 35 and 44 (25.70%), except for staff who were mostly between the ages of 25 and 34 (29.80%) (see Table 38).

Table 37. Gender of participants.

	All		Staff		Patients		Visitors	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Male	485	39.50	228	35.70	178	45.40	77	45.60
Female	688	56.10	397	62.20	203	51.80	85	50.30
Missing	54	4.40	13	2.00	381	97.20	7	4.10
Total	1227	100.00	638	100.00	392	100.00	169	100.00

Table 38. Age of participants.

	All		Staff		Patients		Visitors	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Under 25	138	11.20	74	11.60	41	10.50	23	13.60
25 to 34	304	24.80	190	29.80	85	21.70	27	16.00
35 to 44	315	25.70	176	27.60	99	25.30	39	23.10
45 to 54	238	19.40	123	19.30	78	19.90	36	21.30
55 to 64	141	11.50	56	8.80	61	15.60	24	14.20
65 or older	29	2.40	4	0.60	11	2.80	14	8.30
Missing	62	5.10	15	2.40	17	4.30	6	3.60
Total	1227	100.00	638	100.00	392	100.00	169	100.00

Self-defined ethnicities of the subjects are presented in Table 39. The majority of the participants overall, and for staff, patients and visitor separately, were white (63.8%). The largest minority group was African (10.8%). These results are similar to those obtained during the full City 128 study, demonstrating that this sample is representative (Bowers, Jones, & Simpson 2007).

Table 39. Self-defined ethnicity of participants.

	All		Staff		Patients		Visitors	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
White	783	63.80	410	64.30	279	71.20	93	55.00
Irish	40	3.30	16	2.50	13	3.30	11	6.50
African	132	10.80	94	14.70	25	6.40	11	6.50
Caribbean	65	5.30	25	3.90	23	5.90	17	10.10
Asian	53	4.30	32	5.00	11	2.80	10	5.90
Other	75	6.10	40	6.30	26	6.60	9	5.30
Missing	79	6.40	21	3.30	15	3.80	18	10.70
Total	1227	100.00	638	100.00	392	100.00	169	100.00

The majority of staff participants were qualified nurses (50.47%) and 42.79% had one to five years of experience in psychiatry (including training) (see Table 40 and 41).

Table 40. Discipline of staff participants.

	Frequency	Percent
Nurse	322	50.47
Health Care Assistant	190	29.78
Doctor	18	2.82
Occupational Therapist	18	2.82
Psychologist	1	0.16
Other	71	11.13
Missing	18	2.82
Total	638	100.00

Table 41. Years of experience of staff participants.

	Frequency	Percent
1 - 5 years	273	42.79
6 - 10 years	171	26.80
11 - 15 years	70	10.97
16 or more years	104	16.30
Missing	20	3.13
Total	638	100.00

Of the patient participants, 50.38% were informal (voluntary) and 44.78% were detained under the Mental Health Act (involuntary) (see Table 42). The majority of patients (52.67%) had been previously detained and admitted more than once (see Tables 43 and 44).

Table 42. Presently detained.

	Frequency	Percent
Presently on a section	176	44.78
Presently not on a section	198	50.38
Missing	19	4.83
Total	393	100.00

Table 43. Previously detained.

	Frequency	Percent
Previously detained	207	52.67
No previous detainments	157	39.95
Missing	29	7.38
Total	393	100.00

Table 44. Times admitted to a psychiatric hospital.

	Frequency	Percent
First admission	95	24.17
Admitted two or three times before	153	38.93
Admitted four or more times before	123	31.30
Missing	22	5.60
Total	393	100.00

The majority (39.88%) of visitors had visited a relative or friend staying in a psychiatric ward 10 or more times (see Table 45).

Table 45. Number of visits.

	Frequency	Percent
1 - 5 times	52	30.95
6 - 10 times	39	23.21
10 or more times	67	39.88
Missing	10	5.95
Total	168	100.00

6.4.3 Level of agreement between staff, patients and visitors regarding the door status

It is possible that patient, staff and visitor perception or awareness of the status of the ward door differed, for example some patients might have thought the door was open when in reality it was locked, or vice versa. Three methods were used to explore the level of agreement within and between different groups of responders on the same wards.

1. The within wards variance of responses to the questions about whether the door was locked was compared to the total variance across the sample, in a oneway analysis of variance by ward. For door status during the day, the within ward variation for staff was only 2.5% of the total variation, suggesting that scores are quite cohesive within wards, and the larger proportion of the variation was between wards rather than between staff in the same ward. For door status during the night, the within ward variation for staff was only 3.0% of the total, also suggesting that the larger proportion of the variation is between wards rather than within wards. This pattern repeated itself for patients and visitors. The within ward variation for door status during the day for patients was only 8.8% of the total variance, and for visitors only 12.6%. For door status during the night, the within ward variation for patients was only 14.4% of the total, and for visitors 9.26%. For patients and visitors the larger proportion of the variation was also between wards, and the within ward perception of door status was fairly cohesive. These figures demonstrate high level of agreement (or reliability) within groups about the status of the ward door, however they also show higher levels of agreement amongst the staff, and about door status during the day. However this does not demonstrate agreement between the different groups, as it could be that although patients agree and staff agree, they do not agree with each other.

2. A mean door lock score was therefore calculated for each group by ward, producing a table with each row showing the mean door lock score for patients, staff and visitors. Spearman correlations were then calculated between the groups to assess the level of agreement. For day time door locking, the correlations were high but not perfect, and ranged from 0.77-0.89. The level of agreement about night time door locking was lower, with correlations ranging from 0.64-0.71. In both cases all correlations were

significant at $p < 0.001$, the highest levels of agreement were between patients and visitors, and the lowest levels of agreement were between staff and patients. However some caution is justified in drawing conclusions from this, as only 34 wards provided any responses from visitors, and the visitor response rate was low.

3. Selecting only those wards where the staff responses were unanimous that the door was open all of the day (8 wards), patient responses were examined to assess the overall level of agreement. Of the 46 patient responses from these wards only 62% agreed that the ward door was always open during the day. Four patients (7%) believed that the door was locked all the time. The same exercise was conducted on data from wards where the staff responses were unanimous that the door was locked all of the day (10 wards). Of the 58 patient responses from these wards, 91% agreed the door was locked all the time, with none believing it was open all of the time. These results suggest that patients are less aware of the door status on open wards than they are on closed wards.

6.4.4 General comparative pattern of responses by patients, staff and visitors

The general comparative pattern of responses by patients, staff and visitors were investigated by comparing their mean response on each question. Descriptive statistics are provided in Table 46, with oneway analysis of variance tests. Although many of these variables were not normally distributed, analysis of variance is tolerant of the violation of this assumption, especially with large samples (Feir-Walsh & Toothaker 1974).

Table 46. Mean responses to questions for patients, staff and visitors, with significance tests.

	Patient			Staff			Visitor				
	N	Mean	SD	N	Mean	SD	N	Mean	SD	F	Sig.
Keeps patients safe by preventing them from leaving the ward	361	3.75	1.21	623	4.14	0.86	162	4.03	0.89	17.26	<0.01
Makes patients feel trapped	339	3.59	1.24	615	3.05	1.15	153	3.16	1.01	24.27	<0.01
Makes patients feel safe and secure	348	3.55	1.20	617	3.65	0.89	155	3.71	0.81	1.83	0.16
Relieves patients from responsibility for themselves	334	3.29	1.21	609	3.03	1.10	150	3.35	1.02	8.26	<0.01
Hinders patients' recovery	335	2.96	1.23	603	2.28	0.89	153	2.80	1.03	53.78	<0.01
Makes patients calm and relaxed	341	2.97	1.21	604	2.86	0.93	155	3.25	0.91	9.30	<0.01
Increases the likelihood of patients being aggressive	338	3.31	1.19	608	2.86	1.09	148	3.11	1.07	18.44	<0.01
Makes patients more desperate to escape	342	3.40	1.20	614	2.77	1.09	155	3.11	1.09	34.91	<0.01
Makes patients feel worthless or rejected	341	3.08	1.21	612	2.33	0.92	154	2.80	1.03	60.54	<0.01
Makes patients more dependent on staff	332	3.64	1.16	609	2.96	1.13	155	3.21	1.02	39.02	<0.01
Stops patients from going out to obtain drugs and/or alcohol	343	3.75	1.20	616	3.52	1.27	154	3.84	0.96	6.66	<0.01
Makes patients feel hopeless or depressed	337	3.19	1.19	609	2.44	0.88	151	2.99	1.04	66.46	<0.01
Keeps the general public safe from disturbed patients	337	3.51	1.22	612	3.28	1.25	158	3.49	1.12	4.80	0.01
Prevents patients from taking responsibility for themselves	340	3.29	1.20	607	2.78	1.08	153	3.20	1.07	26.19	<0.01
Stops patients from leaving the ward and harming themselves	333	3.82	1.16	593	3.75	1.12	148	3.91	0.94	1.22	0.30
Helps patients' recovery	335	3.16	1.19	616	3.32	0.99	157	3.38	0.95	3.33	0.04
Makes patients angry, irritable or frustrated	346	3.57	1.11	618	3.14	1.06	156	3.21	1.05	18.24	<0.01
Makes patients feel they are not trusted	347	3.64	1.10	615	3.00	1.07	157	3.20	1.11	38.10	<0.01
Makes staff feel more in control	340	4.00	1.01	620	3.33	1.17	159	3.64	0.99	40.63	<0.01
Hardens staff feelings and makes them uncaring	326	2.92	1.16	616	1.90	0.85	156	2.78	1.04	135.34	<0.01
Makes staff more relaxed and less anxious	324	3.57	1.03	622	3.20	1.11	152	3.50	0.90	14.32	<0.01
Creates extra work for the staff	323	3.28	1.18	618	2.78	1.14	154	2.92	1.03	20.90	<0.01
Makes staff more strict and over-controlling	332	3.25	1.22	618	2.24	0.99	155	2.90	1.02	102.43	<0.01
Makes staff feel safer from complaints, inquiries or litigation	340	3.26	1.13	619	2.65	1.12	157	3.24	0.99	40.98	<0.01
Frees up staff for other work	343	3.23	1.20	623	2.78	1.17	159	3.30	1.01	23.01	<0.01
Is effective	354	3.64	1.20	611	3.81	0.94	155	3.66	0.97	3.14	0.04
Is acceptable	345	3.41	1.26	611	3.65	0.93	156	3.54	0.98	5.96	<0.01
Respects patients' dignity	338	3.18	1.26	611	3.27	1.01	152	3.26	0.96	0.84	0.43
Is safe for the staff who use it	339	3.58	1.09	604	3.52	0.96	153	3.50	0.84	0.54	0.58
Is safe for the patient who is subject to it	339	3.45	1.18	611	3.75	0.88	154	3.56	0.96	10.24	<0.01
I would be prepared to use/undergo this method of containment if I was a staff/patient	342	3.23	1.35	618	3.74	0.98	155	3.48	1.12	23.27	<0.01
Keeps patients safe by stopping just anyone coming in	363	4.13	1.09	627	4.34	0.84	162	4.12	0.88	7.89	<0.01
Makes the ward unwelcoming to visitors	347	2.99	1.28	621	2.40	1.06	153	2.96	1.19	35.03	<0.01
Helps to keep drugs and/or alcohol off the ward	348	3.81	1.20	627	3.72	1.20	154	3.87	1.00	1.39	0.25

The majority of the items showed a distinct pattern. Staff were more positive about the door being locked than patients, with visitor responses in between. The differences are statistically significant, but not very large.

Distribution of responses for patients and visitors were mostly normal, whereas the staff responses to many items were bimodal, i.e. staff were significantly divided or polarised in their opinions on the locked door and its impact (see Table 47).

Table 47. Bimodal distribution of the items of acceptability for staff, patients and visitors.

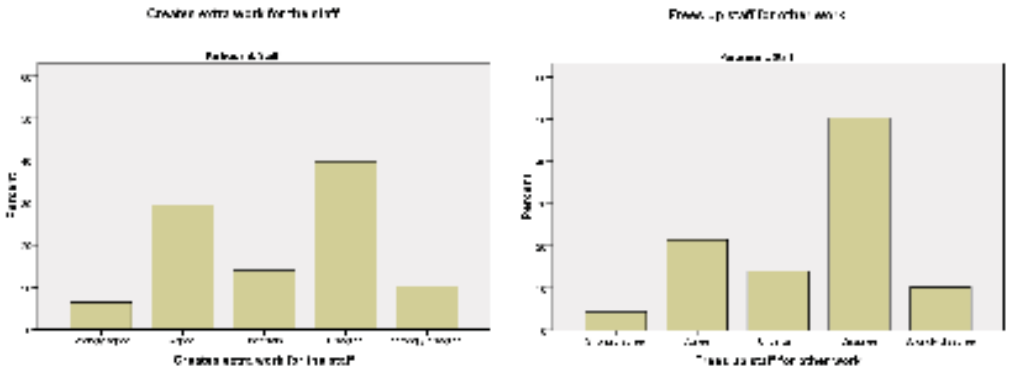
	Staff	Patients	Visitors
Keeps patients safe by preventing them from leaving the ward			
Makes patients feel trapped	X	X	
Makes patients feel safe and secure			
Relieves patients from responsibility for themselves	X	X	
Hinders patients' recovery			
Makes patients calm and relaxed			
Increases the likelihood of patients being aggressive	X		
Makes patients more desperate to escape	X		
Makes patients feel worthless or rejected			
Makes patients more dependent on staff	X		
Stops patients from going out to obtain drugs and/or alcohol	X		
Makes patients feel hopeless or depressed		X	
Keeps the general public safe from disturbed patients	X		
Prevents patients from taking responsibility for themselves	X	X	
Stops patients from leaving the ward and harming themselves	X		
Helps patients' recovery			
Makes patients angry, irritable or frustrated			
Makes patients feel they are not trusted	X		
Makes staff feel more in control	X		
Hardens staff feelings and makes them uncaring			
Makes staff more relaxed and less anxious	X		
Creates extra work for the staff	X	X	
Makes staff more strict and over-controlling			
Makes staff feel safer from complaints, inquiries or litigation			
Frees up staff for other work	X		
Is effective			
Is acceptable			
Respects patients' dignity			
Is safe for the staff who use it			
Is safe for the patient who is subject to it			
I would be prepared to use/undergo this method of containment if I was a staff/patient			
Keeps patients safe by stopping just anyone coming in			
Makes the ward unwelcoming to visitors	X	X	X
Helps to keep drugs and/or alcohol off the ward	X		

Staff were divided on items such as patients having to take responsibility for themselves, drug abuse in the wards, safety (for both the public and patients), the effects of door locking on aggression, absconds, trust, ward atmosphere and staff workload. Patients were also divided on having to take responsibility for themselves, staff workload and ward atmosphere. No particular meaning could be deduced from these bimodal distributions for both staff and patients. Visitor responses exhibited only one bimodal distribution.

6.4.5 The locked door and staff workload

The staff in the best position to give a view of the effect of door on workload were those working on wards that were locked some of the time and open at others. A total of 187 replies were obtained from staff on those wards, and the frequency of their answers to the two workload questions are displayed in Figure 15 below.

Figure 15. Bar charts of staff responses from occasionally locked wards on the effect of door locking on workload



Unfortunately these responses do not deliver a clear answer. Staff are both divided and inconsistent in their answers to these two questions.

6.4.6 The overall approval of locking the door for patients, staff and visitors and in comparison to other containment methods

The overall approval of locking the door for patients, staff and visitors were measured with items parallel to the Attitude to Containment Measures Questionnaire (ACMQ). This questionnaire was previously used in the City 128 study to collect data where staff and patients rated their approval of different containment measures (Bowers, Simpson, Alexander, Ryan, & Carr-Walker 2004). Table 48 summarises staff, patients and visitor responses to these items. Whilst all three groups agree that locking the door is an effective containment method, there is less agreement about its acceptability. Whilst 63% of staff agree or strongly agree that locking the door is acceptable, just less than half of patients consider it to be so, and only just over half of visitors. All three groups express concern about the dignity of patients subject to being locked in the ward, and while the majority opinion is that the practice is safe for staff and patients, staff are much more likely to agree that they are prepared to do the locking (70%) than patients are prepared to be subject to it (46%).

Table 48. Strongly agree and agree frequencies of ACMQ scores for staff, patients and visitors.

Participant		Is effective		Is acceptable		Respects patients' dignity		Is safe for staff who use it		Is safe for patient who is subject to it		Volunteer	
		Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Patient	Strongly agree	93	23.70	74	18.90	52	13.30	63	16.10	58	14.80	58	14.80
n=392	Agree	135	34.40	118	30.10	104	26.50	145	37.00	139	35.50	124	31.60
	Total	228	58.10	192	49.00	156	39.80	208	53.10	197	50.30	182	46.40
Staff	Strongly agree	124	19.40	85	13.30	57	8.90	66	10.30	91	14.30	113	17.70
n=638	Agree	329	51.60	319	50.00	221	34.60	298	46.70	353	55.30	333	52.20
	Total	453	71.00	404	63.30	278	43.50	364	57.00	444	69.60	446	69.90
Visitor	Strongly agree	30	17.80	21	12.40	9	5.30	14	8.30	20	11.80	24	14.20
n=169	Agree	65	38.50	71	42.00	59	34.90	66	39.10	72	42.60	65	38.50
	Total	95	56.30	92	54.40	68	40.20	80	47.40	92	54.40	89	52.70

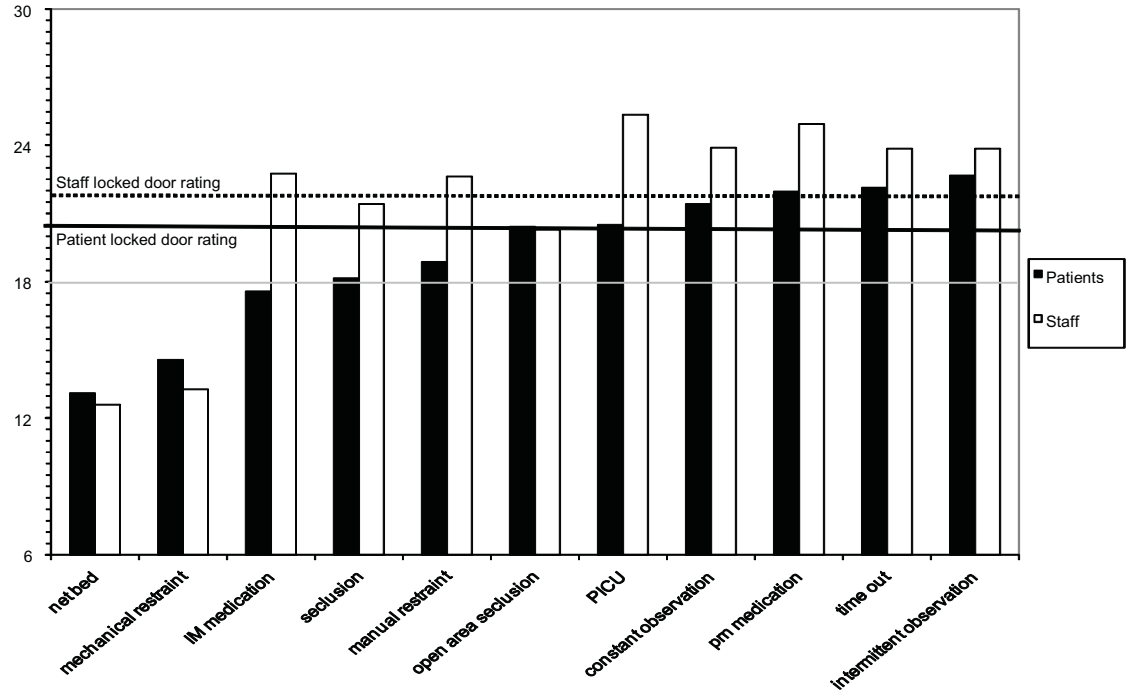
A mean overall acceptability score was calculated by computing the mean of each item of the Attitude to Containments Measures Questionnaire (ACMQ) and multiplying it by the number of questionnaire items (6). Overall staff (mean = 21.76, std. deviation = 4.72), approved more of door locking than patients (mean = 20.55, std. deviation = 6.32), with visitors (mean = 21.07, std. deviation = 4.89), in between (see Table 49).

Table 49. Mean overall ACMQ scores for patient, staff and visitors.

Participant		N	Minimum	Maximum	Mean	Std. Deviation
Patient	Total ACMQ score	372	6	30	20.55	6.32
Staff	Total ACMQ score	628	6	30	21.76	4.72
Visitor	Total ACMQ score	161	6	30	21.07	4.89

The overall acceptability scores of staff and patient for door locking were compared with the overall mean acceptability scores for other containment measures, collected during the City 128 study. Figure 16 shows in a bar chart the comparable ratings of other containment methods collected via the ACMQ during the City-128 study from over one thousand staff and one thousand patients. The black bars represent the views of patients, and the white bars views of staff. The gray horizontal line at 18 on the y-axis represents the dividing line between overall approval and disapproval. Superimposed on the bar chart are horizontal lines representing overall approval levels for door locking for staff and patients, as labelled. As ACMQ reference data for visitors is not available, they have been omitted from this comparison.

Figure 16. Comparison of overall approval of different containment measures by staff and patients.



As evident from Figure 1, both staff and patients overall approve of the door being locked. Staff approve more of IM medication, manual restraint, PICU, constant observation, PRN medication, time out and intermitted observation, than they approve of locking the ward door. But members of staff prefer to use a locked door as a method of containment, before they would use net beds, mechanical restraint, seclusion and open area seclusion.

Patients saw the locked door as worse than constant observation, PRN medication, time out and intermitted observation. However they approved more of the door being locked than they approve of net beds, mechanical restraint, IM medication, seclusion and manual restraint. Patients compare their approval of locked ward doors with their approval levels of open area seclusion and being in a PICU.

These findings should be interpreted with some caution. Although the same wards were used, the samples differed, because both sets of data were not collected at the same time from the same people. Also, participants in this study were not asked to compare their acceptability scores with other containment measures in a single questionnaire, as in the City 128 study.

6.4.7 Factor analysis

The 34 items regarding the impact of the locked door were subjected to principal component analysis (PCA) using SPSS. The Kaiser-Meyer-Olkin value was 0.912, exceeding the recommended value of 0.6 and Bartlett's Test of Sphericity was statistically significant, therefore the data was

suitable for factor analysis. PCA with varimax rotation revealed the presence of five factors with eigenvalues exceeding 1. The five factor solution (Table 50) explained 56.60% of the variance, with factor 1 contributing 22.06 per cent, factor 2 contributing 9.48 per cent, factor 3 contributing 9.32 per cent, factor 4 contributing 8.50 per cent and factor 5 contributing 7.24 per cent of the variance. Factors scores were calculated based on all items loading greater than 0.3.

Table 50. Principal Components Analysis with varimax rotation.

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Keeps patients safe by preventing them from leaving the ward			0.457	0.403	-0.337
Makes patients feel trapped	0.654			-0.309	
Makes patients feel safe and secure			0.313	0.7	
Relieves patients from responsibility for themselves	0.313			0.55	
Hinders patients' recovery	0.584				0.424
Makes patients calm and relaxed				0.769	
Increases the likelihood of patients being aggressive	0.74				
Makes patients more desperate to escape	0.787				
Makes patients feel worthless or rejected	0.698				0.304
Makes patients more dependent on staff	0.692				
Stops patients from going out to obtain drugs and/or alcohol			0.671		
Makes patients feel hopeless or depressed	0.723				
Keeps the general public safe from disturbed patients		0.463	0.373		
Prevents patients from taking responsibility for themselves	0.654				
Stops patients from leaving the ward and harming themselves			0.582		
Helps patients' recovery			0.366	0.6	
Makes patients angry, irritable or frustrated	0.78				
Makes patients feel they are not trusted	0.799				
Makes staff feel more in control		0.716			
Hardens staff feelings and makes them uncaring	0.386				0.654
Makes staff more relaxed and less anxious		0.773			
Creates extra work for the staff	0.388				
Makes staff more strict and over-controlling	0.512				0.591
Makes staff feel safer from complaints, inquiries or litigation		0.702			
Frees up staff for other work		0.697			
Keeps patients safe by stopping just anyone coming in			0.632		
Makes the ward unwelcoming to visitors	0.362				0.628
Helps to keep drugs and/or alcohol off the ward			0.82		
% of variance explained	22.06%	9.48%	9.32%	8.50%	7.24%

Factor 1 brings together *adverse effects:* increased adverse feelings for patients, such as depression, frustration, irritation, constraint and low self-esteem.

Factor 2 brings together s*taff benefits*: diminished staff anxiety and a greater sense of confidence and control.

Factor 3 consists of *patient safety benefits:* increased safety through reductions in access to drugs/alcohol, absconding, self-harm and aggression towards the general public.

Factor 4 brings together *patient comforts*: makes patients feel safe and secure, calm and relaxed, without responsibility and aids recovery.

Factor 5 brings together *cold milieu*: hindered recovery, patients made to feel worthless and rejected, coupled with hardening of staff feelings and greater authoritarianism, with visitors made to feel unwelcome.

The bimodal distributions of staff responses were not visible in the factor scores. Staff factor scores were largely normally distributed or somewhat skewed, not bimodal. This indicates a certain instability and inconsistency in staff responses, rather than the existence of two polarised camps or points of view. In other words, staff responses had a tendency to vacillate between extremes for the same respondent (ambivalence), rather than the respondents consistently rating the locked doors in either one direction or the other (polarisation).

6.4.8 The association of door status with the perception of door locking effects

The relationship between door status and perception of door locking was investigated using Spearman's rank order correlation.

For patients and visitors, there was a significant positive correlation between being on a locked ward during the day and the perception of *adverse effects* (see Table 51). No other factors were significantly associated with being in a locked ward during the day or during the night.

For staff, there was a significant positive correlation between being on a locked ward during the day and the perception of *patient safety benefits* and *patient comforts*. There was also a positive correlation between being on ward that was locked during the night and the perception of *patient comforts*. There was a negative correlation between being on a ward that is locked during the night and the perception of *staff benefits*. No other factors were significantly associated with being in a locked ward during the day or during the night.

Table 51. Spearman's rank order correlation for door status and perception of door locking.

Participant			Factor 1 Adverse effects	Factor 2 Staff benefits	Factor 3 Patient safety benefits	Factor 4 Patient comforts	Factor 5 Cold milieu
Patient	Locked during the day	Correlation Coefficient	0.11	0.04	0.02	0.02	0.04
		Sig. (2-tailed)	0.040	0.431	0.758	0.683	0.466
		N	349	346	350	345	340
	Locked during the night	Correlation Coefficient	0.00	0.03	0.06	0.03	-0.06
		Sig. (2-tailed)	0.942	0.593	0.298	0.548	0.302
		N	330	327	331	327	321
Staff	Locked during the day	Correlation Coefficient	-0.02	-0.05	.14**	.19**	-0.06
		Sig. (2-tailed)	0.642	0.246	<0.001	<0.001	0.161
		N	629	627	630	629	626
	Locked during the night	Correlation Coefficient	-0.04	-0.12	0.05	0.14	-0.06
		Sig. (2-tailed)	0.313	0.003	0.255	0.001	0.154
		N	605	603	606	605	602
Visitor	Locked during the day	Correlation Coefficient	.19**	0.05	-0.01	0.03	0.15
		Sig. (2-tailed)	0.028	0.597	0.947	0.702	0.076
		N	135	139	137	136	135
	Locked during the night	Correlation Coefficient	0.07	-0.12	-0.07	-0.07	0.03
		Sig. (2-tailed)	0.462	0.212	0.472	0.451	0.775
		N	110	112	111	111	110

6.4.9 Demographic variables associated with views on the effects of door locking

1. Gender

The relationship between gender and perception of door locking was investigated using the Mann-Whitney U test.

The Mann-Whitney U test indicated that there were a significant gender difference for staff (z = -1.97, p = .049). Male members of staff perceived more *staff benefits* (mean = 3.32, std. deviation = 0.85) than female members of staff (mean = 3.19, std. deviation = 0.88). No statistically significant associations with gender were observed for patients and visitors.

2. Age

The relationship between age and perception of door locking was investigated using Spearman's rank order correlation.

Table 52. Spearman's rank order correlation for age of participant and perception of door locking.

		Factor 1 Adverse effects	Factor 2 Staff benefits	Factor 3 Patient safety benefits	Factor 4 Patient comforts	Factor 5 Cold milieu
Patient	Correlation Coefficient	-0.05	0.02	0.04	0.04	-0.05
	Sig. (2-tailed)	0.321	0.715	0.413	0.446	0.334
	N	368	365	369	365	360
Staff	Correlation Coefficient	-0.08	-0.10	-0.03	0.05	-0.08
	Sig. (2-tailed)	0.041	0.012	0.435	0.228	0.047
	N	622	621	623	622	620
Visitor	Correlation Coefficient	-0.03	0.13	0.14	0.12	-0.11
	Sig. (2-tailed)	0.665	0.113	0.070	0.142	0.180
	N	159	162	161	160	159

Older staff saw fewer *adverse effects* and less *cold milieu* elements, but also perceived fewer *staff benefits*. There were no other statistically significant relationships between effects of door locking and age of participant.

3. Ethnicity

A one-way between group analysis of variance (ANOVA) was conducted to explore associations between ethnicity and perception of door locking. There is no full non-parametric statistical test available to conduct this analysis, and ANOVA is tolerant of the violation of normality, especially with large samples (Feir-Walsh & Toothaker 1974). However as an additional safeguard, we also report the results of Kruskal-Wallis tests.

Table 53. One-way between group analysis of variance of the association of ethnicity with perception of door locking effects.

			Sum of Squares	df	Mean Square	F	Sig.
Patient	Factor 1 Adverse effects	Between Groups	4.75	5	0.95	1.54	0.175
		Within Groups	223.16	363	0.62		
		Total	227.90	368			
	Factor 2 Staff benefits	Between Groups	2.17	5	0.43	0.56	0.734
		Within Groups	280.75	360	0.78		
		Total	282.92	365			
	Factor 3 Patient safety benefits	Between Groups	3.70	5	0.74	1.06	0.381
		Within Groups	253.29	363	0.70		
		Total	256.99	368			
	Factor 4 Patient comforts	Between Groups	3.22	5	0.64	0.71	0.613
		Within Groups	324.05	359	0.90		
		Total	327.27	364			
	Factor 5 Cold milieu	Between Groups	8.37	5	1.67	1.92	0.091
		Within Groups	308.65	354	0.87		
		Total	317.02	359			
Staff	Factor 1 Adverse effects	Between Groups	5.17	5	1.03	2.28	0.045
		Within Groups	276.69	610	0.45		
		Total	281.85	615			
	Factor 2 Staff benefits	Between Groups	6.46	5	1.29	1.91	0.09
		Within Groups	410.19	608	0.68		
		Total	416.64	613			
	Factor 3 Patient safety benefits	Between Groups	6.14	5	1.23	2.64	0.023
		Within Groups	284.36	611	0.47		
		Total	290.50	616			
	Factor 4 Patient comforts	Between Groups	4.17	5	0.84	2.24	0.049
		Within Groups	227.83	610	0.37		
		Total	232.01	615			
	Factor 5 Cold milieu	Between Groups	5.93	5	1.19	2.66	0.022
		Within Groups	271.07	607	0.45		
		Total	277.00	612			
Visitor	Factor 1 Adverse effects	Between Groups	1.64	5	0.33	0.56	0.732
		Within Groups	83.97	143	0.59		
		Total	85.61	148			
	Factor 2 Staff benefits	Between Groups	1.31	5	0.26	0.43	0.83
		Within Groups	89.07	145	0.61		
		Total	90.38	150			
	Factor 3 Patient safety benefits	Between Groups	1.17	5	0.23	0.56	0.727
		Within Groups	59.66	144	0.41		
		Total	60.83	149			
	Factor 4 Patient comforts	Between Groups	2.18	5	0.44	1.05	0.393
		Within Groups	60.02	144	0.42		
		Total	62.20	149			
	Factor 5 Cold milieu	Between Groups	1.15	5	0.23	0.29	0.919
		Within Groups	113.95	143	0.80		
		Total	115.10	148			

There was a statistically significant difference at the p <.05 level for the ethnicity of members of staff and four of the five factors. There were no other statistically significant relationships for ethnicity of patients or visitors. Table 54 compares the factor scores for staff by ethnic group.

Table 54. Mean scores for staffs' perception of door locking according to ethnicity.

	Factor 1 Adverse effects			Factor 2 Staff benefits			Factor 3 Patient safety benefits			Factor 4 Patient comforts			Factor 5 Cold milieu		
	N	Mean	Deviation	N	Mean	Deviation	N	Mean	Deviation	N	Mean	Deviation	N	Mean	Deviation
White	410	2.67	0.64	408	3.00	0.79	410	3.68	0.65	409	3.36	0.58	409	2.21	0.63
Irish	16	3.08	0.73	16	3.38	0.80	16	3.64	0.69	16	3.53	0.37	16	2.64	0.81
African	94	2.51	0.74	93	3.10	0.91	94	3.93	0.76	94	3.56	0.71	92	2.10	0.74
Caribbean	24	2.67	0.79	25	3.37	0.96	25	3.95	0.73	25	3.49	0.55	24	2.31	0.82
Asian	32	2.70	0.73	32	3.09	0.83	32	3.78	0.72	32	3.46	0.66	32	2.44	0.68
Other	40	2.68	0.72	40	3.20	0.80	40	3.72	0.76	40	3.53	0.71	40	2.20	0.73
Total	616	2.66	0.68	614	3.06	0.82	617	3.73	0.69	616	3.42	0.61	613	2.22	0.67

Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Irish members of staff (mean = 3.08, std. deviation = 0.73) and African members of staff (mean = 2.51, std. deviation = 0.74) was significantly different for factor 1 (p = 0.021). African staff saw fewer *adverse effects* than Irish members of staff.

Post-hoc comparisons also revealed that the mean score for White members of staff (mean = 3.68, std. deviation = 0.65) and African members of staff (mean = 3.93, std. deviation = 0.76) was significantly different for factor 3 (p = 0.018). African staff saw more *patient safety benefits* than White members of staff.

Post-hoc comparisons showed that the mean score for White members of staff (mean = 3.36, std. deviation = 0.58) and African members of staff (mean = 3.56, std. deviation = 0.71) was also significantly different for factor 4 (p = 0.045). African staff saw more *patient comforts* than White members of staff.

Lastly, post-hoc comparisons indicated that the mean score for Irish members of staff (mean = 2.64, std. deviation= 0.81) and African members of staff (mean = 2.10, std. deviation = 0.74) was significantly different for factor 5 (p = 0.037). Irish members of staff saw more *cold milieu* elements than African members of staff.

The overall pattern of these results is that staff of African ethnic origin have a more positive view of locking the door, whereas staff of White and Irish origin have a more negative view. Kruskal-Wallis tests confirm these statistically significant differences between staff of different ethnic origins (see Table 55), in addition showing a significant different by staff ethnicity for *staff benefits*. There were also no significant differences in the impact of ethnicity on perception of door locking for patients or visitors by this test.

Table 55. Kruskal-Wallis tests of the association of ethnicity with perception of the effects of door locking.

		Factor 1 Adverse effects	Factor 2 Staff benefits	Factor 3 Patient safety benefits	Factor 4 Patient comforts	Factor 5 Cold milieu
Patient	Chi-Square	4.927	2.43	3.60	2.822	7.48
	df	4	4	4	4	4.00
	Asymp. Sig.	0.295	0.657	0.46	0.588	0.11
Staff	Chi-Square	10.698	10.973	16.43	14.074	11.78
	df	4	4	4	4	4.00
	Asymp. Sig.	0.03	0.027	<0.001	0.007	0.02
Visitor	Chi-Square	4.361	1.212	2.96	5.823	3.10
	df	4	4	4	4	4.00
	Asymp. Sig.	0.359	0.876	0.57	0.213	0.54

6.4.10 Patient variables associated with views on the effects of door locking

The relationship between different patient variables and perception of door locking was investigated using Spearman's rank order correlation to see if the amount of times admitted, patient status (being presently detained or not) and previous detention was associated with patients' perceptions of the impact of the door being locked (see Table 56).

Table 56. Spearman's rank order correlation for different patient variables and perception of the effect of door locking.

		Factor 1 Adverse effects	Factor 2 Staff benefits	Factor 3 Patient safety benefits	Factor 4 Patient comforts	Factor 5 Cold milieu
Times admitted to a psychiatric hospital	Correlation Coefficient	0.07	0.11	0.00	-0.03	0.03
	Sig. (2-tailed)	0.207	0.045	0.961	0.581	0.524
	N	364	363	365	361	356
Presently detained	Correlation Coefficient	0.17	0.02	-0.13	-0.11	0.17
	Sig. (2-tailed)	0.001	0.768	0.013	0.045	0.001
	N	363	360	363	358	355
Previously detained	Correlation Coefficient	0.10	-0.05	-0.10	-0.16	0.13
	Sig. (2-tailed)	0.058	0.377	0.054	0.003	0.016
	N	355	352	355	350	347

There was a positive correlation between times admitted to a psychiatric hospital and factor 2. The more times a patient was admitted to a psychiatric hospital, the more *staff benefits* that patient perceived.

There was a positive correlation between being presently detained under the Mental Health Act and factor 1 and factor 5. Patients who were currently detained saw more *adverse effects* and more *cold milieu* elements. There was a negative correlation between being presently detained under the

Mental Health Act, factor 3 and factor 4. Patients who were currently detained saw fewer *patient safety benefits* and fewer *patient comforts*.

There was a negative correlation between being previously detained under the Mental Health Act and factor 4 and a positive correlation for factor 5. Patients who were previously detained saw fewer *patient comforts* and more *cold milieu* elements. There were no other statistically significant relationships between patient variables and perception of locking the door.

6.4.11 Staff variables associated with views on the effects of door locking

The relationship between different staff variables and perception of door locking was investigated using Spearman's rank order correlation, to investigate if duration of psychiatric experience was associated with staffs' perception of the door being locked (see Table 31).

Table 57. Spearman's rank order correlation for number of years experience of staff and perception of door locking.

		Factor 1 Adverse effects	Factor 2 Staff benefits	Factor 3 Patient safety benefits	Factor 4 Patient comforts	Factor 5 Cold milieu
Experience	Correlation Coefficient	-0.08	-0.10	-0.12	-0.09	-0.08
	Sig. (2-tailed)	0.038	0.015	0.005	0.022	0.058
	N	604	602	605	604	601

There was a negative correlation between experience and factors 1-4. Staff with more years of experience perceived fewer *adverse effects*, fewer *staff benefits*, fewer *patient safety benefits* and fewer *patient comforts*.

A one-way between group analysis of variance was conducted to explore the impact of discipline on perception of door locking (see Table 58).

Table 58. One-way between group analysis of variance regarding the impact of discipline on perception of door locking.

		Sum of Squares	df	Mean Square	F	Sig.
Factor 1 Adverse effects	Between Groups	5.84	4	1.46	3.27	0.011
	Within Groups	272.31	611	0.45		
	Total	278.15	615			
Factor 2 Staff benefits	Between Groups	7.87	4	1.97	2.84	0.024
	Within Groups	422.37	609	0.69		
	Total	430.24	613			
Factor 3 Patient safety benefits	Between Groups	7.66	4	1.92	4.04	0.003
	Within Groups	290.24	612	0.47		
	Total	297.90	616			
Factor 4 Patient comforts	Between Groups	5.09	4	1.27	3.31	0.011
	Within Groups	235.11	611	0.38		
	Total	240.20	615			
Factor 5 Cold milieu	Between Groups	6.66	4	1.66	3.75	0.005
	Within Groups	269.96	608	0.44		
	Total	276.61	612			

There was a statistically significant difference at the p <.05 level for the discipline of members of staff and all factor scores. Comparison scores are given in Table 59.

Table 59. Mean scores for different staff disciplines and perception of door locking.

	Factor 1 Adverse effects			Factor 2 Staff benefits			Factor 3 Patient safety benefits			Factor 4 Patient comforts			Factor 5 Cold milieu		
	N	Mean	Std. Deviation	N	Mean	Std. Deviation	N	Mean	Std. Deviation	N	Mean	Std. Deviation	N	Mean	Std. Deviation
Nurse	322	2.65	0.70	319	2.95	0.80	322	3.63	0.68	321	3.34	0.61	320	2.23	0.69
Health Care Assistant	189	2.57	0.63	190	3.13	0.91	190	3.88	0.70	190	3.54	0.66	188	2.11	0.62
Doctor	18	2.81	0.70	18	3.28	0.84	18	3.73	0.74	18	3.28	0.65	18	2.50	0.73
Occupational Therapist	18	3.05	0.63	18	2.87	0.65	18	3.55	0.71	18	3.33	0.47	18	2.58	0.62
Other	69	2.78	0.60	69	3.23	0.80	69	3.75	0.66	69	3.43	0.57	69	2.32	0.67
Total	616	2.66	0.67	614	3.05	0.84	617	3.72	0.70	616	3.41	0.62	613	2.22	0.67

Post-hoc comparisons using the Tukey HSD test indicated that the mean score for health care assistants (mean = 2.57, std. deviation = 0.63) and occupational therapist (mean = 3.05, std. deviation = 0.63) was significantly different for factor 1 (p = 0.03). Health care assistants perceived fewer *adverse effects* than occupational therapists.

Post-hoc comparisons also indicated that the mean score for health care assistants (mean = 3.88, std. deviation = 0.70) and nurses (mean = 3.63, std. deviation = 0.68) weas significantly different for factor 3 (p = 0.001). Health care assistants perceived more *patient safety benefits* than nurses.

Post-hoc comparisons showed that the mean score for health care assistant (mean = 3.53, std. deviation = 0.66) and nurses (mean = 3.34, std. deviation = 0.61) was also significantly different for factor 4 (p = 0.005). Health care assistants perceived more *patient comforts* than nurses.

Lastly, post-hoc comparisons indicated that the mean score for health care assistant (mean = 2.11, std. deviation = 0.62) and occupational therapist (mean = 2.58, std. deviation = 0.62) was significantly different for factor 5 (p = 0.038). Health care assistants perceived fewer *cold milieu* elements than occupational therapists.

Overall the results demonstrate that health care assistants have a more positive view of the effects of locking the door, and nurses and occupational therapists a more negative view. There was only one psychologist in the sample, so no post-hoc test could be calculated for this discipline. This case was excluded during post-hoc analysis.

6.4.12 Visitor variables associated with views on the effects of door locking

The relationship between different visitor variables and perception of door locking was investigated using Spearman's rank order correlation, to see if the number of times visited was associated perception of the effects of door locking.

Table 60. Spearman's rank order correlation for number of visits of visitors and perception of door locking.

		Factor 1 Adverse effects	Factor 2 Staff benefits	Factor 3 Patient safety benefits	Factor 4 Patient comforts	Factor 5 Cold milieu
Visits	Correlation Coefficient	0.03	-0.05	0.09	0.19	-0.08
	Sig. (2-tailed)	0.735	0.546	0.279	0.022	0.340
	N	151	154	153	151	151

There was a positive correlation between times visited and factor 4. The more times a participant had visited a psychiatric inpatient ward, the more *patient comforts* the visitor perceived. There were no other statistically significant relationships between visitor variables and perception of locking the door.

7 DISCUSSION AND RECOMMENDATIONS

7.1 SUMMARY OF FINDINGS

7.1.1 Part one: exit security and multivariate modelling of absconding, drug and alcohol use

Data collected during this study provided credible estimates of absconding which were comparable to rates collected by other methods during previous studies. Exit security features were inconsistently deployed across wards and Trusts, with most units having some means by which patients could abscond. Wards fell into three categories in relation to door locking: permanently locked, partially open, and permanently open. The most robust statistical analysis showed a significant reduction in actual absconding (both missing without permission and officially reported absconding) when the ward door was locked the whole shift, controlling for other variables and the hierarchical nature of the data. Exit security was not found to be related to absconding. Several other features of wards were related to absconding rates, including the quality of the ward physical environment and use of temporary staff. Both exit security and door locking were related to the age of the ward, suggesting that such practices are historically located and to a degree fixed at the date new units open.

Drug use was almost as prevalent as alcohol use amongst inpatients on acute psychiatric wards. On average such incidents occurred once every 4-5 days on a 20 bedded ward, although there was considerable variation between wards. No consistent relationships were found with exit security features, intensity of drug/alcohol monitoring procedures (including the use of Police 'sniffer' dogs), or the locking of the ward door. There were indications that use of breath testing for alcohol might reduce usage, and that the use of 'sniffer' dogs was associated with greater alcohol use. Greater numbers of male admissions were associated with higher rates, as were higher proportions of admissions with schizophrenia in the case of substance use. Admissions during the shift were also associated with higher rates. Positive associations with aggressive behaviour were found, particularly verbal abuse. There were also positive associations with absconding, and between alcohol and substance use. Use of bank and agency staff was associated with higher rates.

7.1.2 Part two: interviews of patients, staff and visitors

Patients generally found out whether the door was locked or open through observation and experience, however there was also evidence that on the open ward some patients were deliberately allowed to remain ignorant of the fact that they could open the door. Interviewees generally agreed that

locking the door prevented absconding, but the staff were more aware than others that this could be circumvented. Absconding was recognised to create risks for patients and others, but for the staff these loomed larger and were more severe. Staff spoke about feelings of guilt, embarrassment and fear of being blamed following an abscond. They also thought that an open door created scope for aggressive confrontations around the exit in adverse circumstances, and were concerned that the open door led to greater use of manual restraint. Locking the door was reported to create stigmatisation, feelings of claustrophobia, turn the ward into a prison, exclude patients from normal life and make them feel mistrusted. These effects of the locked door were coupled with either anger, irritation and aggression, or low self-esteem and depression on the part of patients. Some patients responded to the locked door with subservience towards staff, and others regarded staff as enjoying a feeling of superiority and power. The locked door also had positive aspects for some patients, in that they felt protected from hostile outsiders coming in. However yet other patients thought the locked door created a secret space within which they could be poorly treated by staff. Staff reported that open wards caused anxious vigilance to prevent absconding, or the allocation of specific members of staff to watch the door, whereas staff on occasionally locked wards reported that locking the door increased workload due to the need to let people in and out. The door status was thus entangled with debates over nurse staffing levels. Both circumstances interfered with other duties and nurse-patient interaction, locked doors through interruption and open doors through anxious vigilance and divided attention.

7.1.3 Part three: survey of patients, staff and visitors

The survey yielded 1227 responses from patients, staff and visitors, with staff returning the most and visitors the fewest questionnaires. In general staff were more positive about the effects of locking the door than patients, with visitor responses indicating opinions mid way between the two. There were some indications that patients on open wards were not always fully aware of the door status, while patients on locked wards were more informed. Whilst the majority of all three groups agreed that locking the ward doors was effective, there was also agreement that this failed to respect patients' dignity, and a much higher proportion of staff agreed that they were prepared to do the locking (70%) than patients were prepared to be subject to it (46%). Nevertheless, all three groups overall expressed more approval than disapproval of door locking. For patients, their level of approval was the same as that for Psychiatric Intensive Care, whereas overall staff approved of locking the door less than they approved of manual restraint and coerced intramuscular medication, perhaps indicating an intense symbolic role for this practice within staff culture. Factor analysis revealed five underlying dimensions to evaluations of the impact of locking the ward door: adverse effects, staff benefits, patient safety benefits, patient comforts and cold milieu elements. Patients on locked wards, and visitors to them, perceived more adverse effects, whereas staff working on those locked wards perceived greater patient safety benefits and patient

comforts. Patients who were detained (or who had been previously detained) perceived fewer benefits and more adverse effects of locking the door. In general health care assistants were more positive about the impact of locking the door, and nurses and occupational therapists less so.

7.2 DISCUSSION

7.2.1 Door status and absconding

A key issue facing acute psychiatric services is the decision whether to opt for a system of permanent locking or not. Increasing number of wards and units have (Bowers, Alexander, Callaghan, Eales, Guy, McCann, & Ryan 2002;Garcia, Kennett, Quraishi, & Durcan 2005), even though at the time of writing such a policy contravenes legal guidance in the Mental Health Act Code of practice. The findings of this study do provide some evidence on the efficacy of door locking, but that evidence is not without ambiguity.

The most powerful analysis we conducted, utilising multilevel modelling, demonstrated an association between locking the ward door for the full shift, and reduced absconding. Furthermore, it suggested that locking the door reduces the likelihood of an abscond during a shift by somewhere between 10% and 40%. Absconds are associated with raised risks of self-harm (1 – 5%). This association has long been known from studies of suicide (Hunt et al. 2007), and is likely to result from self-harm taking place immediately following the abscond by the absconding patient. The direction of causality between door status and absconding rates is clear. If door locking increases because absconding is high, the inverse correlation between absconding and door locking can only occur if it effectively reduces absconding. Door locking is not at all likely to be initiated because absconding is low, so reverse causality can be considered an improbable explanation.

That locking the door was an effective way to reduce absconding rates was confirmed in the interviews of staff, patients and visitors. They overwhelmingly agreed that this was the case. The results of the questionnaire survey were also in accord with this conclusion, with the majority of all three groups agreeing or strongly agreeing that locking the ward door kept patients safe by preventing them from leaving the ward.

Although it may be concluded that locking the door does effectively reduce absconding rates, it far from completely prevents absconding. The locked door can be circumvented in a number of ways, as reported by respondents in the follow up telephone interviews of ward staff, including rushing the door when it is opened to allow someone else in or out, kicking the door open, running off during escort to other parts of the hospital, or choosing other routes out of the ward. In the interviews of staff, patients and visitors, it was the staff who most often commented that locking door was not totally effective, and there were accounts from all three groups about how patients absconded even when the door was locked.

Exit security features other than locking the door seemed to be inconsistent and ineffective – probably because there was always at least one relatively easy means of escape available for patient use. The fact that door locking practice was not related to exit security levels further confirmed the inconsistency in approach to security across the NHS acute psychiatric estate. There is little point in having a thick double interlock door locked all the time, and windows that do not open fully, and a secure garden area with a fence that cannot be climbed, if at the same time setting off the fire alarm automatically opens a back door leading out of the ward. It would seem that there must be no major holes at all in such a system for it to be effective, otherwise the means patients use to abscond alter according to availability. A previous study has already noted that patients abscond more frequently during staff handovers, when staff are otherwise preoccupied (Bowers et al. 1999a), and a case study of three Psychiatric Intensive Care Units has shown that plugging physical security gaps can reduce absconding frequency (Bowers et al. 2008c).

Fire regulations do not mandate that patients have to be able to open exit doors on acute psychiatric wards, or that the electronic alarm system must automatically unlock doors. A moment's reflection will show that this is never the case in high or medium secure forensic mental health facilities. Instead there must at all times be adequate numbers of staff on duty, who are able to open the doors in an emergency, and who have been adequately trained to deal with a fire in a secure setting. This common security gap (present on 73% of acute wards) is one of several that must be attended to if a consistent approach to security is to be taken.

Univariate analyses showed that many patient features were related to absconding rates from wards, including male gender, youth, diagnosis of schizophrenia, detention under the Mental Health Act, risk of harm to others as a reason for admission and certain ethnicities. These features confirm those discovered when comparing absconding to non-absconding patients (Bowers et al. 2000): male gender, youth, diagnosis of schizophrenia, risk to others, and ethnic minority status. In that previous study modelling led to the identification of three key indicators of absconding risk overlapping with those identified in this study: male gender, youth, and diagnosis of schizophrenia. However in this study modelling identified ethnicity and diagnosis of schizophrenia as the most closely tied to absconding rates. This study also identified social deprivation as leading to raised absconding risk, confirming findings from several previous studies (Bowers, Jarrett, & Clark 1998).

Indications were found in the multilevel models for a link between admissions during the shift and raised risk of absconding, especially for officially reported absconding. This connection between absconds and admissions has also been found in a previously conducted longitudinal study (Bowers et al. 2005a), and implies that wards with higher rates of admissions will have more incidents of absconding. As throughput has also been linked to many other types of adverse incidents in that longitudinal study, as well as raised rates of self-harm in a previous analysis of this study data (Bowers, Whittington, Nolan, Parkin, Curtis, Bhui, Hackney,

Allan, Simpson, & Flood 2007c), this constitutes further evidence that wards with a high patient throughput will be more disturbed, and may provide more disturbing environments for patients.

There are similar indications in the multilevel models that a good physical environment quality reduces absconding risks, presumably because a more pleasant environment is less aversive and reduces motivation to leave. The mechanism could be direct in this way, with a nicer environment inducing more positive feelings about remaining on the ward, or the more pleasing environment may generate greater feelings of self-worth and esteem leading to less desire to abscond from what is perhaps overall a socially stigmatising environment. The fact that environment quality was not found to be related to self-harm rates (Bowers, Whittington, Nolan, Parkin, Curtis, Bhui, Hackney, Allan, Simpson, & Flood 2007c) suggest the former explanation may be more plausible. It is notable that permanently locked wards had significantly poorer quality environments, thus paradoxically motivating absconding whilst trying to control it.

The use of special observation and the locking of the ward door for part of the shift, are both positively associated with absconding and absconding attempts, and seem most likely to be responsive to such events. Locking the ward door after an abscond has been attempted or when a patient has stated an intention to abscond, or when they have absconded and been retrieved within the shift, are all likely to result in this type of association. Placing of patients at risk of absconding on observation is similar, and will also result in a positive association between these events. For officially reported absconding, this association is at the ward and Trust level, reflecting that such absconding events are of longer duration (because of the potential delay between the abscond and the report due to consultation, decision making, and implementation) and seldom resolved within a single shift.

Permanently and occasionally locked wards were much less likely to use seclusion as a means of containment, suggesting that difficult and disturbed patients on open wards are managed by this means, rather than by locking the door. This puts a different context on debates about the moral and liberal value of keeping the ward door open, if this is achieved at the cost of greater use of a means of containment which is also widely considered to be reprehensible and unnecessary (Soliday 2004), and rated by patients as one of the least approved forms of containment currently in use in the UK (Bowers, Van der Werf, Vokkolainen, Muir-Cochrane, Allan, & Alexander 2007b).

There is some evidence that staff attitudes are related in some way to absconding, either causally or consequentially, but this is not consistent across the different types of analyses. Both the univariate and multilevel analyses show a link between ward structure (as measured by the WAS) and absconding missing, with greater structure associated with lower absconding. However this could be because structure keeps patients on the ward through containment of their impulses, or through providing direction, motivation and therapeutic alliance, or through diminishing friction between

staff and patients. Alternatively, large numbers of absconds might disrupt the functioning of the ward and erode structure, so the causal path might be in the reverse direction.

There are similar difficulties in interpreting the relationship between nurse staffing and absconding rates. There were general indications in both the multilevel and multinomial models of a positive association between all nurse staffing numbers (qualified, unqualified, bank and agency) and absconding, although the most robust associations are with unqualified bank and agency staffing numbers. Again there are several possibilities. These staff might be being brought in to provide the staffing resources for the increased special observation associated with absconding and absconding attempts. Or, it might be that increased staff lead to increased difficult interactions with patients, perhaps more attempts to get patients to adhere to the ward rules, and that this in turn stimulates absconding. However this has not been cited by absconders as a major reason why they abscond in previous studies (Bowers et al. 1999b), and this hypothesis also runs contrary to the inverse association found between absconding rates and the ward structure (rules and routines). Perhaps it is more staff, particularly unqualified bank or agency staff, in the context of low structure that leads to inconsistency in staff approaches, an inconsistency that then increases friction and leads to absconding.

7.2.2 Door status and alcohol/substance use

There are some grounds to believe that greater use of testing might help reduce the frequency of alcohol/substance use, although the lack of variability in some practices between wards made relationships difficult to determine. Presumably testing makes patients disinclined to consume alcohol or substances because they would experience some degree of shame on being discovered. However whether that sense of shame is attached to consumption, or attached to breaking known rules, or both, is an open question. The nature of the findings perhaps suggest that the occasional use of testing is superior to never using such tests, as it is in relation to alcohol testing (significant numbers of wards do no alcohol testing at all), where associations with reduced use are visible. It is less clear whether there are any gains to be made through the introduction of random testing to all patients, or testing of all patients on admission or return from leave. Very few wards operate such blanket policies.

About a third of wards reported that they were using Police 'sniffer' dogs to regularly check the wards for illegal substances, and there are accounts of this practice in the literature (Rands 2004). This appeared to be unrelated to actual rates of substance use, however such a lack of relationship could have emerged through the preferential and effective use of this practice on wards with historically high levels of substance use. An inverse relationship between the practice and substance use would have given firmer evidence of its efficacy. However the positive association with alcohol use is suggestive of efficacy, in that patients might be substituting illegal drugs with alcoholic drinks.

Both testing and the use of 'sniffer' dogs have associated ethical problems related to invasiveness and patient consent. The evidence from this study is not by itself strong enough to provide a good justification for either of these interventions.

It is perhaps more clear that greater exit security or locking of the ward door had no influence on rates of these behaviours, and thus cannot form part of any strategy to control alcohol or substance use by inpatients. In the questionnaire survey, the majority of patients staff and visitors all agreed that locking the door would do little to keep drugs and alcohol of the ward.

The associations between male gender and alcohol/substance abuse are well known (Phillips & Johnson 2003) and were confirmed in this data set. In addition, the proportion of patients admitted suffering from schizophrenia was associated with substance use, confirming current concerns about the growing problem of dual diagnosis (Sandford 1995). Interestingly, there was an indication that the presence of an Assertive Community Treatment team led to a reduction in such dual diagnosis admissions, reflecting the fact that such teams deal with difficult, unstable, frequently admitted and often substance abusing, patients with schizophrenia. Both alcohol and substance use events were associated with admissions during the shift, perhaps reflecting the admission of disturbed and intoxicated persons. The link between these behaviours and absconding perhaps also reflect the return to the ward of patients in that condition, with leaving the ward or being outside of the ward being associated with the acquisition and consumption of alcohol/substances. As such this may be indicative evidence that being on the ward does serve to some degree to suppress such behaviours, a proposition supported by evidence from other studies that 13-70% of patients who consume drugs and/or alcohol regularly in the community cease during their admission (Alterman et al. 1980;Alterman, Erdlen, Laporte, & Erdlen 1982;Blumberg et al. 1971;Isaac, Isaac, & Holloway 2005;Phillips & Johnson 2003).

There has been considerable concern expressed by nurses over links between intoxication, especially that produced by illegal drug use, and extreme violence and assaultive behaviour by patients (McKeown & Leibling 1995;Van Putten, Crumpton, & Yale 1976). Links between alcohol/substance use and violence in the general community are well known (Yesavage & Zarcone 1983). However it has not so far been possible to substantiate this association for psychiatric inpatients (Bowers et al. 2005c). The evidence from the analysis presented in this chapter is also unclear. Associations were found for both alcohol and substance abuse with verbal aggression, suggesting that there might be such a link. However for alcohol use, the level at which this association occurred was that of Trusts, suggesting that this was a rather generic association that was related to Trust operation, rather than a specific within shift association of the intoxicated person being aggressive. The link between substance use and verbal aggression was more specifically at the shift level. The difficulty in demonstrating these links statistically may have several reasons. Actual physical violence is very

rare compared to rates of alcohol/substance use, and probably has many other causes. In addition, most substance use is of Cannabis, which does not generally lead to aggressive behaviour. It is the more rare cases of stimulant use (amphetamines, crack cocaine) that are of more concern and are perhaps more likely to be associated with violence.

The association found between alcohol use and seclusion is concerning. This does suggest that intoxicated patients are dealt with through a process of exclusion and isolation, however the level at which the association occurs is again at the level of Trusts rather than shifts or wards. The variance partitioning table suggests that some Trusts have a particular constellation of issues associated with high alcohol use by inpatients, including aggressive behaviours, rule breaking, seclusion use, low levels of qualified nursing staff, high levels of bank/agency qualified staff, and a greater preponderance of male staff. These interlinked issues do not appear to be related to the social features of the districts served, as there was no link between alcohol use and deprivation and social fragmentation. Without further data this may be impossible to explain, however it could be speculated that there might be differences between Trusts in the nature and operation of services for meeting the needs of patients with alcohol dependency problems, resulting in different admission policies for detoxification, thus resulting in different patterns of behaviour on the wards.

The associations between staffing variables and alcohol/substance use are also difficult to interpret. Both are positively associated with greater numbers of bank/agency staff on duty. Such staff get a rather bad press (Audit Commission 2001), and it is tempting to interpret this association in a causal fashion. However it is also possible to see this association as a product of the use of temporary staff for special observation and other extra duties when the ward is 'disturbed'. The variance partitioning exercise does not help here, as for alcohol use the association is at the level of Trust, whereas for substance use it is at the level of shift. It is also worth noting that in both cases there is indicative evidence that the presence of regular rostered staff is associated with lower rates of alcohol/substance use, the finding that has been reported in another study (Bowers, Allan, Simpson, Nijman, & Warren 2005a) and is also present in the City-128 data for self-harm (Bowers, Whittington, Nolan, Parkin, Curtis, Bhui, Hackney, Allan, Simpson, & Flood 2007c).

7.2.3 Door status, depression and self-harm

Previous analysis of the City-128 dataset has shown a positive association between locking of the ward door and self-harm (Bowers, Whittington, Nolan, Parkin, Curtis, Bhui, Hackney, Allan, Simpson, & Flood 2007c). That analysis demonstrated a 7 – 35% raised risk of a self-harm incident when the ward door was locked the whole shift. The association between self-harm and door locking also emerged in the multinomial logistic regression reported here.

The interviews of patients, staff and visitors go some way towards confirming and explaining this association. For patients the locked door

affirmed and symbolised their social exclusion and stigmatisation, engendering feelings of depression and low self-esteem. Those feelings were accentuated by the role of being a prisoner rather than a patient; by the sense of being claustrophobically trapped and confined; and by being mistrusted by the staff. Negative feelings as a consequence of the door being locked have been reported in other studies (Adams 2000;Haglund, Van Der Meiden, Von Knorring, & Von Essen 2007;Haglund, Von-Knorring, & von-Essen 2006;Wisebord, Denber, Charatan, & Travis 1958). The questionnaire survey revealed that these were not the feelings of the majority of patients; nevertheless a significant proportion (38%) did endorse the statement that the locked door made patients feel 'worthless and rejected'.

While locking the door might reduce access to the means for suicide by keeping patients on the ward, preventing them from absconding, it might also trigger more suicidal impulses through exacerbating a sense of depression and worthlessness. The existing empirical research literature on inpatient suicide shows similar rates on both locked and open wards (Deisenhammer, DeCol, Honeder, & Hinterhuber 2000;Niskanen 1974), however these studies are too small or poorly reported to draw a firm conclusion. Given these findings, it is difficult to determine what effect door locking is likely to have on inpatient suicide rates.

7.2.4 Door status, aggression and resistance

The interviews of staff, patients and visitors indicated that some patients were likely to respond to the door being locked with frustration, irritation, anger, refusal of treatment, and in some cases overt aggression. As with depression, these feelings were accentuated by the role of being a prisoner rather than a patient; by the sense of being claustrophobically trapped and confined; and by being mistrusted by the staff. In the questionnaire survey, half (50%) of patients agreed or strongly agreed that locking the door increased the likelihood of patients being aggressive.

On the other hand staff who were interviewed also expressed concern that keeping the door open led to difficult confrontations between staff and patients near the exit that could result in aggression, violence and ultimately manual restraint of the patient. In the questionnaire survey staff were less convinced that the locked door led to increased aggression, with only a third (32%) endorsing that statement.

Previous research has shown that manual restraint is used to prevent absconding and compel patients to stay on the ward (Ryan & Bowers 2006), and has shown that aggressive incidents cluster near the ward exit door (Nijman et al. 1997). However the latter study was conducted on a locked ward, indicating that the exit is an area for tense confrontations between staff and patients, whether the door is locked or not. The multinomial logistic regression reported here, contrasting locked, partly locked and open wards, showed no difference in rates of manual restraint use between the three categories of ward. In addition, analyses of the City-128 dataset reported elsewhere have shown a positive association between door locking

and aggression (Bowers et al. 2008a) and door locking and medication refusal (Baker, Bowers, & Owiti 2008). One rather old study also demonstrated a reduction in aggression coupled with the opening of a previously locked disturbed ward (Folkard 1960). The weight of evidence thus suggests that locking the door is associated with greater aggression and resistance from patients.

7.2.5 Patient awareness of the door status

The interviews of patients revealed that most became acquainted with the door status through personal discovery rather than being informed by staff on admission. The fact that patients are seldom informed by staff does indicate that the topic might be deliberately avoided. On a locked ward this could be one strategy to avoid unnecessary argument or disagreements, especially during the tense period that accompanies a compulsory admission to hospital. However on an unlocked ward, staff avoidance of this topic might be motivated by the desire to keep patients believing that the door was locked, so that they would not even attempt to abscond. Such omissions of information were found to occur on the open ward in the interview study. It is hard to see how this would be any different from really locking the door, as the impact on patients would be the same. The only people who gain here are the staff, who are able to slightly reduce their anxious vigilance of the door, whilst still being able to portray to others within and outside the organisation an appearance of a libertarian psychiatry.

That such an omission of information might be quite widespread and systematic on open wards is revealed by the questionnaire survey responses. On open wards only 62% of the patients were fully aware that the ward door was unlocked all the time, whereas on permanently locked wards 91% of patients were fully aware that the door was locked all the time.

Given the strength of belief that the locked doors prevent absconding, it seems likely that locking the door leads to many patients giving up on the idea of absconding. Thus the efficacy of the locked door is partly psychological as well as physical. That this is the case, and is appreciated by staff, is revealed by their failure to fully declare to all patients the door status on the open ward. Such dissembling may serve to erode patient's trust in ward staff, once the deception becomes apparent.

7.2.6 Door status and staff anxiety

The interviews of staff revealed that keeping the ward door open increased their anxiety substantially, initiating a state of anxious vigilance of the door in order to prevent at risk patients from absconding. This state of anxiety was based on an acute sensitivity to the rare but serious events that could follow from an abscond, specifically suicide, homicide and serious assault. Locking the door therefore allowed nurses to be more relaxed and they felt they had one less thing to worry about. In the questionnaire survey more than half (57%) of the staff agreed or strongly agreed that they felt more in

control when the door was locked, and half (50%) felt more relaxed and less anxious. Patients and visitors were similarly convinced that this was the case, and several other studies also confirm that locking the door gives the staff and increased sense of control (Haglund, Van Der Meiden, Von Knorring, & Von Essen 2007;Haglund, Von-Knorring, & von-Essen 2006;Sacks, Nininger, & La Torre 1982).

7.2.7 Door status and staff workload

It was impossible to determine from either the interviews or the questionnaire survey what relative impact on staff workload locking or opening the door has. The interviewees provided evidence of increased burden for both open and locked wards. Open wards led to anxious vigilance, allocation of staff to watch the door, risky staff-patient confrontations by the exit and increased administrative work associated with absconding. Locked wards may have reduced some of these burdens, but introduced the need to open and close the door for visitors and for those patients who were free to come and go as they pleased. Meanwhile anxious vigilance continued for those patients on the ward due to other risks and considerations, with only one element being reduced. Three other interview studies have cited as a theme increased workload with the door being locked (Ashmore 2008;Dumont, Daniels, Margolis, Carson, & Ham 1960;Haglund, Von-Knorring, & von-Essen 2006). Data from the questionnaire survey was equally unhelpful. When staff responses on occasionally locked wards to questions about workload were examined, there was no consistent answer as to whether locking the door increased or decreased workload. In addition, the multinomial logistic regression comparing locked, occasionally locked and open wards did not show any greater use special observation, a high staff resource utilising procedure (Bowers & Park 2001). Interestingly that analysis did show that locked and partly locked wards had more staff in post than open wards.

7.2.8 Overall opinion on locked and open doors

Five meaningful independent factors, representing different dimensions of opinion on locked doors, were found through principal components analysis of the questionnaire survey data. These were:

- A*dverse effects:* increased adverse feelings for patients, such as depression, frustration, irritation, constraint and low self-esteem.
- S*taff benefits*: diminished staff anxiety and a greater sense of confidence and control.
- P*atient safety benefits:* increased safety through reductions in access to drugs/alcohol, absconding, self-harm and aggression towards the general public.
- P*atient comforts*: makes patients feel safe and secure, calm and relaxed, without responsibility and aids recovery.

- C*old milieu elements*: hindered recovery, patients made to feel worthless and rejected, coupled with hardening of staff feelings and greater authoritarianism, with visitors made to feel unwelcome.

In general staff (in comparison to patients) perceived fewer adverse effects, more staff benefits, more patient safety benefits, more patient comfort and less cold milieu elements. Visitors ratings were generally mid way between the two.

As judged by the Attitude to Containment Methods Questionnaire combined rating, all three groups considered locking the door to be in general safe, effective and acceptable, with staff being the most positive, and patients the least. However inspection of the individual question responses gave a more nuanced picture of the patient point of view. While they considered locking the door to be safe and effective, only half agreed that it was acceptable, less than half believed it respected patients dignity, and less than half declared that they were prepared to undergo this method of containment. When compared to previous patient ratings of other containment methods, patients rated locking the ward door as equivalent to Psychiatric Intensive Care (transfer to a specialist locked ward for disturbed patients) and open area seclusion (isolation in a locked area, accompanied by nurses). Both these other containment methods include locked doors, so these ratings are coherent and compatible with the previously collected data.

However the staff ratings of the locked door make less sense, as they judge it to be less acceptable than coerced intramuscular medication and manual restraint. In addition it was notable that there was considerable inconsistency in staff responses to the overall questionnaire, with bimodal response distributions indicating that the same individuals gave quite opposing ratings to different questions. This quite extreme rating for the acceptability, coupled with inconsistency in responses, suggests that staff are ambivalent about the locked door, and that the locked door might symbolise rather more than it is – perhaps representing the coercive history of psychiatry.

Finally, staff working on locked wards had a tendency to perceive more patient safety benefits and patient comfort, whereas patients on locked wards perceived more adverse effects. If these perceptions are in some way caused by experience of door locking, we can infer that when an open ward changes policy to being locked, this will result in a greater disparity and polarisation of view between staff and patients. The contrary nature of these perceptions, and the social separation they could cause, might well be another cause of increased feelings of depression, despair, anger and aggression, already referred to above. Previous research has also shown that staffs' current ward policy influences their preference for the door status (Sacks, Nininger, & La Torre 1982), with staff showed a more favourable opinion towards the door policy used on their current ward.

7.2.9 Resolving problems and ameliorating difficulties

1. The open ward

The increased risks posed by opening the door can be significantly reduced by the use of a research proven anti-absconding intervention (Bowers, Simpson, & Alexander 2005;Bowers, Alexander, & Gaskell 2003). That intervention includes the identification of those patients most at risk of absconding, coupled with targeted nursing time with those patients to facilitate links to home friends and family, deal with any home worries and concerns, etc. The intervention has been shown to reduce absconding by 25%, and therefore appears to be as effective a strategy as locking the door.

Measures designed to reduce staff anxiety and fear of blame could be employed, such as non-blame management approaches to patient care and greater emotional and practical support to staff through greater clinical supervision and staff support groups.

Solutions to the workload impact of opening the ward door are more difficult to think of and would incur greater expense, such as a staffed ward receptionist or security guard, or a general increase in nurse staffing levels to ease the burden of observation and vigilance.

2. The locked ward

The 'claustrophobic' impact of locking the door seems to be reduced by the provision of a secure garden area for patients, as interviews conducted on the ward having access to such an area 'claustrophobia' was not mentioned. It seems strange that while many if not most prisoners get daily access to fresh air, patient suffering from mental disorders may not. In the UK prisoners "no longer have a statutory right to one hour's exercise each day. There is a right to one hour's physical exercise a week and it is aimed to allow one hour's exercise in the open air a day if circumstances permit. Health care advice is that this period should not normally be reduced to less than half an hour a day." (The LIBERTY guide to Human Rights, www.yourrights.org.uk, accessed 24/3/08). Every effort should be made by hospitals choosing to lock their ward doors to provide such access to fresh air for patients, as it would appear to ameliorate some of the negative psychological impacts. If a garden is not possible, the addition of safely enclosed balconies might provide an acceptable substitute.

It is harder to see how other negative psychological impacts of locking the door can be modified or minimised. Mistrust, stigmatisation, separation from normality and the identification of the hospital with a prison appear to be inextricable with the act of locking the door. Perhaps the provision of more patient choice in other areas, through a modified therapeutic community approach; or the easing of access to the everyday things we take for granted, such as the ability to buy a newspaper or other supplies from a shop trolley or some other substitute.

It is also possible to think of ways in which the workload effects of locking the door could be ameliorated. Official visitors could be given keys/swipe

cards, or be allocated them at the unit main reception, patient visitors could be restricted to certain hours, and selected patients could be given keys/swipe cards. All of these could reduce the need for the nursing team to open and close the door continuously.

3. Alternative solutions

The most common alternative solution is to opt for a partial locking policy, i.e. the door is locked from time to time at the discretion of the nurse in charge. It is not easy to evaluate the impact of this policy in general. Results on absconding suggest that gains in prevention made when the doors are locked are counterbalanced by increases when the door is open. A similar mixed picture is likely to arise in terms of the capacity of the door status to exacerbate the frequency of self-harm, aggression and medication refusal.

A solution widely used in other European countries is to have both a locked an open ward, with the more ill and uncooperative patients going to the locked wards, and then transferring to the open ward as they improve. The downside of this arrangement is that it would disrupt continuity of care and the locality based, sectorised system currently in operation in most of the UK. It would require substantial changes to current hospital buildings, and there are already moves in some areas to split male from female wards, or to divide acute admission wards on the basis of speciality groups, such as schizophrenia. The ultimate consequence of these barely compatible demands and changes is fragmentation of the system. Moreover, a split between open and locked wards still leaves some patients in the locked ward, with the potential adverse consequences that have been described.

It might be argued that we already have this system in the UK, as we have separate locked forensic medium secure units, albeit usually not on the same site as acute admission units and rarely accepting transfers from them. However there are many separate locked Psychiatric Intensive Care Units that do take such transfers and operate in conjunction with acute admission wards. However it is striking that the results show that locked wards are much more likely to have access to a PICU than open wards.

New technology might make an impact. Some wards are experimenting with the issuing of swipe cards to selected patients, so that some can leave freely, but others cannot. Others are fitting fingerprint scanners so that similarly, some patients can leave whereas others cannot. It is not beyond the bounds of possibility that facial recognition software may ultimately make it possible for the ward doors to be open to some patients whilst locked for others, without any form of key required. Of course, this still leaves the ward effectively locked to some patients, with all the potential adverse impacts that might have.

7.2.10 Door locking and the historical development of psychiatric services

The first open wards appear to have been effectively created for 'shell-shocked' soldiers during World War I, and this social rehabilitation of

psychiatry was carried through into new mental health legislation in the 1930s. However it was not until after World War II that the open door movement commenced, a movement that by the 1960s had led to the unlocking of nearly all psychiatric wards. However it would be a mistake to consider that the meaning of that opening process was the same as the meaning of open acute inpatient wards today. The vast majority of wards that were opened in the 1940s and 50s were in large, isolated country asylums, and were filled with institutionalised chronically ill patients who had had little contact with the outside world for many years. The opening of the doors was definitely a libertarian advance, but many years were yet to pass before the main locus of care was transferred to the community, and patients were given a modicum of privacy, dignity and independence. The moral psychiatric world we inhabit today is not the same as it was then, as the entire psychiatric landscape has changed. One of the leading asylums in the open door movement was Dingleton Hospital, which opened all the wards relatively early. Yet the Medical Superintendent could proudly write, in 1955, "You may ask what happened to the determined run-away patients since the doors were opened. Seven who didn't respond to any other form of treatment have been leucotomized and now fit within the hospital regime very well" (Bell 1955).

The findings that link age of build of a unit and its current security practices help to place a historical context around the vexed issue of locked doors. Those wards built and opened in the 1960s and 1970s were more likely to be permanently open, more likely to hold community meetings, more likely to use seclusion, and more likely to score highly on the Team Climate Inventory participative safety scale (more meetings and shared decision making) indicating a flattened hierarchy. All these features (bar seclusion) are identifiable with social psychiatry and the therapeutic community movement of that era. Since that time the focus has changed, and wards recently opened are more likely to be permanently locked with greater overall exit security. The shape of these changes seems to reflect an increased preoccupation with patient and public safety, a trend which has been widely visible in the UK since the 1980s. There has been an underlying shift from psychiatric scandals (Martin 1984) based on poor inpatient care in isolated closed institutions (to which open wards and social and community psychiatry were seen as an answer), to scandals based on homicides and suicides by psychiatric patients (to which increased security and locked doors are now seen as part of the answer).

Since the 1990s, acute psychiatric wards have been changing to a permanently locked door policy in increasing numbers. In 2000, 25% of London's acute psychiatric wards were permanently locked (Bowers, Alexander, Callaghan, Eales, Guy, McCann, & Ryan 2002), and by the time of a national survey in 2004 37% of wards in England frequently locked the door (Garcia, Kennett, Quraishi, & Durcan 2005). At the time of the initial City-128 study in 2005, 30% of the study wards were permanently locked, by the time of the current study (2008) 50% of wards were locked most or all of time. However this move towards locking the door is not being driven by hard evidence on the benefits. Instead, it seems likely that the

motivation is to reduce risk and anxiety, whilst increasing defensibility in the face of media criticism following serious untoward incidents (Bowers et al. 2006).

7.3 STRENGTHS AND LIMITATIONS

The differing parts of this study had varying strengths and limitations.

In part one, data collected during the City 128 study in 2004-05 was matched with data on exit security collected during early 2006. Multilevel models were then the main method of identifying links between locked doors, exit security, absconding and drug/alcohol use rates. One limitation is that the data on exit security was collected some time later than the outcome data, and the recollection of the staff member we interviewed by telephone about the state of affairs when the outcome data was first collected may not have been totally accurate. Policies can change quite fast in acute psychiatry, especially in relation to door locking and exit security. The second main limitation is the cross sectional nature of the dataset. The significant correlations reported cannot identify the direction of causality. Firm conclusions cannot therefore be drawn from these correlations, which are subject to a variety of different interpretations. In addition, the modelling strategy used is likely to identify some variables as significant purely by chance. However the large scale of the study, the number of potential confounding variables incorporated in the analysis, and the statistical allowance made for the clustering of responses by organisation, all increase the accuracy and the reliability of the findings.

In part two of the study, interviews were conducted with patients, staff and visitors on three wards within one NHS Trust. Although this provided in depth information that could not be acquired in any other way, the generalisability of these findings to other wards and Trusts is not known. In addition, fewer visitors than other groups could be recruited, meaning that visitor insights and views are less well represented in the data analysis and findings.

In part three of the study, questionnaires were sent out to 128 acute psychiatric wards for distribution to staff, patients and visitors, and return by post. Only 61 wards responded, and the best response rates came from staff, with the worst from visitors. Again, therefore, visitor views are less well or strongly represented in the findings. As questionnaires were distributed and collected back by staff before being posted to the researchers, it could be that some bias arose as to which patients were given a questionnaire, or that patient or visitor responses were biased because they were aware that staff would be able to see their responses (although no names were recorded on the questionnaires). However the general demographic characteristics of the staff and patient samples was very similar to the profile of those groups who participated in the previous City-128 study, providing some confidence for generalisability. Assessment of the relationship of demographic factors to the factor scores involved

multiple statistical tests, which may have introduced the potential for some false positive findings.

A great strength of all three parts together was that findings could be triangulated. In many cases findings from one of part of the study confirmed, and sometimes illuminated findings from other parts. In addition, supportive findings from other published studies could be cited. Together these features mean that a strong degree of confidence can be placed in the findings.

7.4 CONCLUSIONS

Locking the ward door significantly reduces, but does not eliminate absconding. Locking the door also increases feelings of social exclusion, stigmatisation and depression, as well as being associated with increased rates of self-harm. It is therefore not possible to draw any conclusion as to whether locking the ward door increases, decreases or has no overall effect on the rate of inpatient suicide. Exit security (other than locking the door) is inconsistently deployed, with nearly every ward having at least one route via which patients can abscond. If security is to be increased, attention needs to be given to more than just the ward door and whether it is locked. However, short of turning acute psychiatric wards into medium or high security facilities, there is no way to eliminate absconding. Locking the ward door has no effect on the rate of use of alcohol or illicit drugs by inpatients.

Locking the ward door is associated with increased patient aggression and treatment refusal, engendered by feelings of being trapped and confined, lack of access to fresh air, feeling like a prisoner rather than a patient, and being mistrusted by staff. Open doors are not associated with increased overall use of manual restraint to forcibly detain patients. Access to secure garden areas, and high quality ward physical environments, are also likely to reduce absconding rates from wards. Secure garden areas may also reduce some of the frustration caused by detention on the ward.

Staff on open wards avoid informing some patients of the door status, allowing them to believe that it is locked. This practice negates some of the psychological benefits to patients of the door being kept open. Open doors lead to anxious vigilance on the part of staff, who find this tension provoking and uncomfortable. It is not known whether open or locked doors create more work for staff. Open doors lead to a greater concentration on general observation (but not special observation), whereas locked doors necessitate frequent locking and unlocking of the door to allow people in and out. Even staff working with both conditions cannot definitively tell which involves more work.

The emotional burdens of the locked door fall on patients (anger and depression) whereas those of the open door fall on staff (anxiety). All other things being equal, we should perhaps be more willing to accept an emotional burden on staff, who are paid care providers trained for the job, than on patients who are ill and for whom care is being provided. Staff are more positive than patients about the benefits of locking the door, and

minimise the adverse effects. These differences are magnified by the experience of being on a locked ward, with patients seeing it as even worse, while staff see it as better, thus reducing common ground between the two parties.

Although it reduces absconding, locking the door has no demonstrable effect on risk of suicide, or on alcohol/drug use, does not seem to release more staff time for direct patient care, and appears to be linked to increased depression, aggression and treatment refusal on the part of patients. It can only be concluded, therefore, that acute admission wards should be kept open.

7.5 RECOMMENDATIONS

Acute admission wards should have a single main exit that is unlocked to those leaving during the day.

All patients, their family and friends should be informed on admission that the door is open during the day, with the reasons for this.

That exit should have maximum visibility to the staff on duty, via the positioning of the nursing office or station, the use of mirrors, or closed circuit television overlooking the exit and piped through to the nursing office and/or main areas of the ward where staff spend most time, and/or other similar strategies.

Staffing numbers should be sufficient to maintain general observation of the ward and vigilance of the exit, even at times of high demand on staffing resources, for example handovers and ward rounds.

All acute admission wards should implement the proven anti-absconding intervention in full and on a continuous basis.

Patients judged to be at particularly high risk of harming themselves or others following absconding should be managed through psychological and social interventions, coupled with the judicious use of p.r.n. medication, intermittent special observation, constant special observation, or temporary transfer to Psychiatric Intensive Care. All acute psychiatric wards should therefore have ready access to a responsive intensive care service or locked extra care area.

Although acute wards should have a single open exit, they should also have unobtrusive but effective and consistent wraparound exit security. In other words garden areas should be secure, there should be no additional patient releasable or accessible exits from the ward (windows of fire doors), and if feasible, a staffed main reception to the unit or hospital as a whole should be provided (coupled with effective communication systems to the wards and joint procedures regarding potentially absconding patients).

All wards should provide secure and safe patient access to fresh air via a garden area or covered and enclosed (to prevent suicide attempts through jumping) internal or external balcony.

All acute admission wards should have and maintain a high quality, spacious, clean, well decorated and furnished, welcoming environment, symbolising the high value placed on patients, the service to them, and the staff that provide it.

Additional reductions in rates of self-harm may be achieved by increasing the overall use of intermittent observation, the provision of more patient activity sessions, and enriching the ward skill mix with the use of greater numbers of professionally qualified staff.

Given that absconding cannot be eliminated, unless the circumstances are unusual (for example during negligently conducted constant special observation), staff should not blame themselves, neither should they be blamed, when a patient absconds.

Experimentation and innovation on alternative solutions to exit security, utilising new technologies, should continue to take place and be evaluated for its costs and benefits.

Specific research recommendations:

Findings of this study could be usefully confirmed by interviews with a larger and more widely recruited sample of patients, staff and visitors.

Effects of the locked door on the mental state of patients (depression) and staff (anxiety) could be more firmly established by a quantitative study utilising objective measures of depression and anxiety.

Local Trusts and Hospitals who are implementing changes to their exit security policies should evaluate those changes using before and after analysis. Whilst single such studies are weak, multiple and repeated findings carry some weight.

Appendix 1 Follow-up telephone interview of City-128 wards on exit security

---

WARD NAME:

TRUST:

WARDID:

Call the ward, and ask for the ward manager or the nurse in charge.

Hello, my name is N, and I'm a researcher working with Professor Len Bowers on the City 128 project. Your ward took part in this large research project recently. I'm phoning to clarify a few details about your ward, as we've been getting some interesting results about locking the ward door. For example, we are finding little relationship between the door being locked and absconding rates. Do you have 10 minutes to talk to me?

[If not, arrange another time]

Thank you, I know how busy wards can be, and it's good of you to spare the time.

[No need to ask the following question if they are the named ward manager]

Are you a regular member of staff on this ward, and been working there for at least 3 months?

[If not, ask for someone who is/has, or organise to call back]

Throughout this interview we want to know how things were on the ward while you were collecting the City 128 questionnaires at the end of every shift – if there have been recent changes, can you please ignore these.

[Have dates to hand from the City 128 data]

To begin with, I have a few questions about the front door of the ward. Most of these questions just require a yes or no response, a few will ask for more details but I will explain as we get to them.

1. Does your ward have two separately lockable doors, i.e. an air lock system?

(a) Yes

(b) No

[1a. If yes, does it have an interlock system (i.e. only one of the two doors can be unlocked at a time)?]

(a) Yes

(b) No

---

2. Which of the next three statements best describes your ward front door?

(a) About as thick and solid as an ordinary house front door?

(b) Slightly thicker, like an ordinary hospital door?

(c) Solid in construction, made with strong wood and strong hinges?

---

3. Does the door automatically make an audible noise when opened (e.g. buzzing or bleeping)?

(a) Yes

(b) No

---

4. Is the nursing office situated next to the door so that patients who leave the ward can be easily monitored?

(a) Yes

(b) No

---

5. Does your ward sometimes station a nurse by the door to filter those who have permission to leave from those who don't?

(a) Yes [Clarify that this is not outside the door for viewing potential visitors before letting them in]

(b) No

6. Does your ward have a CCTV monitor for viewing who is **leaving** the ward?

(a) Yes

(b) No

---

7. Does the front door automatically unlock if the fire alarm goes off?

(a) Yes

(b) No

---

8. Once a patient is outside the ward front door, do they have to pass any further locked doors that bar their efforts to leave?

(a) Yes

(b) No

---

9. Is there a staffed unit reception desk that the person leaving has to pass?

(a) Yes

(b) No

10. Is there a gatehouse or other similar staffed facility at the exit to the hospital grounds?

(a) Yes

(b) No

---

11. Does your ward have a fire door that patients' can release to get out (e.g. by setting off the fire alarm, breaking a glass bolt, or by lever etc.)?

(a) Yes

(b) No

---

12. Are there potential exits from your ward other than the front door or fire door previously mentioned (e.g. additional doors, ground floor windows that open, or can be easily be broken, or an enclosed garden area with a fence that can be climbed)?

(a) Yes

(b) No

If yes, can you describe them please?

If yes, how many alternative exits are there?

---

13. Is there anything else preventing (or assisting) patients leaving the ward that we haven't thought of?

---

14. In your experience, when the ward door is locked to stop people leaving, how do patients most commonly successfully abscond from your ward?

Before finishing the interview, we'd like to clarify a few issues about the intensive care backup your ward has.

By a psychiatric intensive care unit, I mean a separate ward which is more secure and has higher staffing levels, for the care of patients who are more disturbed.

15. Does your ward have a psychiatric intensive care unit you can send disturbed patients to?

(a) Yes

(b) No

[If no, go to question 19]

[If question 15 answered yes]

16. Is it in the same hospital as your ward, or on another site?

(a) Yes, same hospital

(b) No, another hospital at a distance

[If question 15 answered yes]

17. If yes, how easy is it to get them to take patients?

(a) Very easy – they respond quickly and nearly always accept our referrals

(b) Moderately easy – referrals can take time to be evaluated and are not always accepted

(c) It is difficult to get them to accept patients, either because they often refuse patients or because they are full and have no beds

[If question 15 answered yes]

18. Do you have any additional comments about your psychiatric intensive care unit?

[If question 15 answered no]

19. How do your cope with your most disturbed patients who would otherwise go to a psychiatric intensive care unit?

Last question.

20. Does your ward have a seclusion room for patients?

(a) Yes

(b) No

[20a. If yes, is it:]

(a) On ward

(b) Off ward, but on site

(c) None

[20b. If yes, is it a seclusion suite that includes a toilet area?]

(a) On ward

(b) Off ward, but on site

(c) None

---

21. Is there anything else that we haven't asked you about that you think would be useful to mention?

Many thanks for your time and trouble.

Appendix 2 Interview schedules for patients, staff and visitors

Patient Interview Topic Guide

We would like to ask you some questions on how you feel about the door locking practices in this ward, if you prefer a closed or open ward door and how you generally feel about being in this ward.

A. The patient

A1. Firstly I just need to record some basic details about you. Could you tell me how old you are?

A2. And could you state for the tape recorder whether you are male or female?

A3. Are you currently detained under the Mental Health Act?

A4. What would you consider to be your ethnicity?

B. Awareness of the door status

Thanks for that. Now I have those details I'd like to ask you some questions about the main entrance to the ward.

B1. Is the door to this ward generally locked or open?

B2. When you were first admitted, how did you find this out?

Probes: Staff, other patients, observation, signs, written material?

C. How the patient feels about the door being locked

C1. [Ask C1a or C1b only, as applicable]

C1a. [On wards where the door is locked sometimes or permanently] How do you feel about the door being locked?

C1b. [On wards where the door is always open] How would you feel if the ward door was locked?

Probes: Does/would the ward feel different to you? In what way?

C2. [Ask C2a or C2b only, as applicable]

C2a. [On wards where the door is locked sometimes or permanently] How would you feel if the ward door was open?

Probes: Does/would the ward feel different to you? In what way?

C2b. [OR On wards where the door is always locked] How do you feel about the door being open/unlocked?

C3. Does whether the door is open or locked influence how you feel about being a patient?

C4. What is the difference, if any, in your daily activities when you are in a locked or open ward?

C5. Does a closed/open door affect how you behave towards other patients on the ward?

D. Effects on the patient group

D1. In your opinion what safer: keeping the door locked, or keeping it open?

Probe: Can you explain why that is? Can you tell me a bit more about why you think that?

[Make sure this question is answered for each of these three groups] Safer for patients on the ward? Safer for the public outside of hospital? Safer for the staff on the ward?

D2. Is locking the door a good way to prevent patients from leaving without the agreement of staff?

Probe: Can you explain why that is? Can you tell me a bit more about why you think that?

D3. Does an open ward have a different atmosphere than a closed/locked ward?

Probes: In what way is it different? Do patients behave differently? What would you imagine?

D4. Do you think a locked or an unlocked door has different effects on patients from different cultures and backgrounds?

D5. Do patients get better more quickly on a locked or an open ward – or doesn't it matter?

Probe: Can you explain why that is? Can you tell me a bit more about why you think that?

E. Effects on visitors and others

E1. Do you think friends and family view you differently when the door is open or locked – does a locked or unlocked door have an impact on their perception of you?

Probe: How is that? Can you tell me a bit more about that?

E2. What do you think friends and family feel when they arrive and find the ward door is locked?

Probe: Do you think they have any concerns? Protection for patients? Effects on patients?

E3. Would your friends and family who haven't visited view you differently if they knew you had been on a locked or an open ward?

Probe: How is that? Can you tell me a bit more about that?

E4. Does a closed/open door affect how you behave towards visitors to the ward?

F. Effects on staff

F1. Does an open or locked door affect how staff behave towards you?

F2. Does a closed/open door affect how you behave towards staff?

F3. How do you think staff feel about a locked or unlocked door?

F4. Do you think a locked or unlocked door affects the way staff view you?

Probe: How does that work?

F5. Do you think whether the door is open or locked influences how staff feel about being nurses?

G. Closure

G1. Do you have anything else you'd like to say about the ward door being open or locked?

G2. Is there anything you would like to ask me about this research?

Many thanks for your participation and contribution.

2. Staff Interview Topic Guide

We would like to ask you some questions on how you feel about the door locking practices in this ward, if you prefer a closed or open ward door and how you generally feel about working in this ward.

A. The staff member

A1. Firstly I just need to record some basic details about you. Could you tell me how old you are?

A2. And could you state for the tape recorder whether you are male or female?

A3. What is your current post, and how long have you been working in acute inpatient psychiatry?

A4. What would you consider to be your ethnicity?

B. Awareness of the door status

Thanks for that. Now I have those details I'd like to ask you some questions about the main entrance to the ward.

B1. Is the door to this ward generally locked or open?

C. How the interviewee feels about the door status

C1. [Ask C1a or C1b only, as applicable]

C1a. [On wards where the door is locked sometimes or permanently] How do you feel about the door being locked?

C1b. [On wards where the door is always open] How would you feel if the ward door was locked?

Probes: Does/would the ward feel different to you? In what way?

C2. [Ask C2a or C2b only, as applicable]

C2a. [On wards where the door is locked sometimes or permanently] How would you feel if the ward door was open?

Probes: Does/would the ward feel different to you? In what way?

C2b. [On wards where the door is always locked] How do you feel about the door being open/unlocked?

C3. Does whether the door is open or locked influence how you feel about being a staff member?

C4. How does whether the door is locked or not affect your day to day life on the ward?

Probes: More or less work to do? More or less anxiety about patients? Other effects?

C5. Does a closed/open door affect how you behave towards patients on the ward?

C6. Do you think a locked or unlocked door affects the way you view patients?

Probe: How does that work?

C7. How do you feel about carrying around the keys to a locked ward?

D. Effects on the patient group

D1. In your opinion what is most safe: keeping the door locked, or keeping it open?

Probe: Can you explain why that is? Can you tell me a bit more about why you think that?

[make sure all three of these groups are covered in the answer to this question] Safer for patients on the ward? Safer for the public outside of hospital? Safer for the staff on the ward?

D2. Is locking the door a good way to prevent patients from leaving without the agreement of staff?

Probe: Can you explain why that is? Can you tell me a bit more about why you think that?

D3. Does an open ward have a different atmosphere than a closed/locked ward?

Probes: In what way is it different? Do patients behave differently?

D4. Do you think a locked or an unlocked door has different effects on patients from different cultures and backgrounds?

D5. Do you think a locked or an unlocked door has different effects on formal and informal patients?

D6. Do patients get better more quickly on a locked or an open ward – or doesn't it matter?

Probe: Can you explain why that is? Can you tell me a bit more about why you think that?

D7. Does whether the door is locked have an effect on how patients view themselves?

D8. Does it have any effect on the way patients view each other?

D9. Does it affect the way that patients behave towards you?

D9. What other positive or negative effects on patients does locking the ward door (or keeping the ward door open) have?

E. Effects on patients, friends and family [repeat this to give emphasis and clarity]

E1. Do you think patients' friends and family view you differently when the door is open or locked – does a locked or unlocked door have an impact on their perception of you?

Probe: How is that? Can you tell me a bit more about that?

E2. What do you think friends and family feel when they arrive and find the ward door is locked?

Probe: Do you think they have any concerns? Protection for patients? Effects on patients?

E3. Do you think friends and family view patients differently when the door is open or locked – does a locked or unlocked door have an impact on their perception of the person they are visiting and/or other patients on the ward?

Probe: How is that? Can you tell me a bit more about that?

F. Closure

F1. Do you have anything else you'd like to say about the ward door being open or locked?

F2. Is there anything you would like to ask me about this research?

Many thanks for your participation and contribution.

3. Visitors Interview Topic Guide

We would like to ask you some questions on how you feel about the door locking practice in this ward, if you prefer a closed or open ward door and how you generally feel about visiting this ward.

A. The visitor

A1. Firstly I just need to record some basic details about you. Could you tell me how old you are?

A2. And could you state for the tape recorder whether you are male or female?

A3. What would you consider to be your ethnicity?

B. Awareness of the door status

Thanks for that. Now I have those details I'd like to ask you some questions about the main entrance to the ward.

B1. Is the door to this ward generally locked or open?

C. How the visitor feels about the door being locked

C1. [Ask question C1a or C1b only, as applicable]

C1a. [On wards where the door is locked sometimes or permanently] How do you feel about the door being locked?

C1b. [On wards where the door is always open] How would you feel if the ward door was locked?

Probes: Does/would the ward feel different to you? In what way?

C2. [Ask question C2a or C2b only, as applicable]

C2a. [On wards where the door is locked sometimes or permanently] How would you feel if the ward door was open?

Probes: Does/would the ward feel different to you? In what way?

C2b. [On wards where the door is always locked] How do you feel about the door being open/unlocked?

C3. Does whether the door is open or locked influence how you feel about visiting?

C4. Does a closed/open door affect how you behave towards the person you are visiting?

C5. Do you think you view patients differently when the door is open or locked – does a locked or unlocked door have an impact on how you see them?

Probe: How is that? Can you tell me a bit more about that?

D. Effects on the patient group

D1. In your opinion what is most safe: keeping the door locked, or keeping it open?

Probe: Can you explain why that is? Can you tell me a bit more about why you think that?

[Make sure this question is answered for each of these three groups] Safer for patients on the ward? Safer for the public outside of hospital? Safer for the staff on the ward?

D2. Is locking the door a good way to prevent patients from leaving without the agreement of staff?

Probe: Can you explain why that is? Can you tell me a bit more about why you think that?

D3. Does an open ward have a different atmosphere than a closed/locked ward?

Probes: In what way is it different? Do patients behave differently? What would you imagine?

D4. Do you think a locked or an unlocked door has different effects on patients from different cultures and backgrounds?

D5. Do patients get better more quickly on a locked or an open ward – or doesn't it matter?

Probe: Can you explain why that is? Can you tell me a bit more about why you think that?

E. Effects on staff

E1. Does an open or locked door affect how staff behave towards patients?

E2. Does a closed/open door affect how you behave towards staff?

E3. How do you think staff feel about a locked or unlocked door?

E4. Do you think a locked or unlocked door affects the way staff view patients?

Probe: How does that work?

E5. Do you think whether the door is open or locked influences how staff feel about being nurses?

F. Closure

F1. Do you have anything else you'd like to say about the ward door being open or locked?

F2. Is there anything you would like to ask me about this research?

Many thanks for your participation and contribution.

Appendix 3 Questionnaire

What do you think about the ward door being locked?

Most psychiatric wards used to be unlocked and open, but more and more are starting to permanently lock their doors. In order to guide what we do in future, we need to know what patients, visitors and staff think about this. This is a national survey being undertaken on behalf of the NHS. Please tick one box only for each question. Please answer all the questions if you can. If you are not sure about an answer, your best guess is better than no response.
Thank you for your help.

Locking the doors to patients leaving

These questions are about the effects of locking the door as an obstacle to people leaving, so that anyone who leaves the ward either has to have a key, or has to ask someone who has one to let them out.

Q1 How frequently is this ward locked to patients leaving **during the day**

- *All of the time* ☐
- *Most of the time* ☐
- *About half of the time* ☐
- *Some of the time* ☐
- *Never* ☐
- *I don't know* ☐

Q2 How frequently is this ward locked to patients leaving **during the night**

- *All of the time* ☐
- *Most of the time* ☐
- *About half of the time* ☐
- *Some of the time* ☐
- *Never* ☐
- *I don't know* ☐

Q3 What are the effects of locking the door on **patients?**

	Strongly agree	*Agree*	*Uncertain*	*Disagree*	*Strongly disagree*
Keeps patients safe by preventing them from leaving the ward	☐	☐	☐	☐	☐
Makes patients feel trapped	☐	☐	☐	☐	☐
Makes patients feel safe and secure	☐	☐	☐	☐	☐
Relieves patients from responsibility for themselves	☐	☐	☐	☐	☐
Hinders patients' recovery	☐	☐	☐	☐	☐
Makes patients calm and relaxed	☐	☐	☐	☐	☐
Increases the likelihood of patients being aggressive	☐	☐	☐	☐	☐
Makes patients more desperate to escape	☐	☐	☐	☐	☐
Makes patients feel worthless or rejected	☐	☐	☐	☐	☐
Makes patients more dependent on staff	☐	☐	☐	☐	☐
Stops patients from going out to obtain drugs and/or alcohol	☐	☐	☐	☐	☐
Makes patients feel hopeless or depressed	☐	☐	☐	☐	☐
Keeps the general public safe from disturbed patients	☐	☐	☐	☐	☐
Prevents patients from taking responsibility for themselves	☐	☐	☐	☐	☐
Stops patients from leaving the ward and harming themselves	☐	☐	☐	☐	☐
Helps patients' recovery	☐	☐	☐	☐	☐
Makes patients angry, irritable or frustrated	☐	☐	☐	☐	☐
Makes patients feel they are not trusted	☐	☐	☐	☐	☐

Q4 What are the effects of locking the door on **staff?**

	Strongly agree	*Agree*	*Uncertain*	*Disagree*	*Strongly disagree*
Makes staff feel more in control	☐	☐	☐	☐	☐
Hardens staff feelings and makes them uncaring	☐	☐	☐	☐	☐
Makes staff more relaxed and less anxious	☐	☐	☐	☐	☐
Creates extra work for the staff	☐	☐	☐	☐	☐
Makes staff more strict and over-controlling	☐	☐	☐	☐	☐
Makes staff feel safer from complaints, inquiries or litigation	☐	☐	☐	☐	☐
Frees up staff for other work	☐	☐	☐	☐	☐

Q5 Locking the door to patients leaving .....

	Strongly agree	*Agree*	*Uncertain*	*Disagree*	*Strongly disagree*
Is effective	☐	☐	☐	☐	☐
Is acceptable	☐	☐	☐	☐	☐
Respects patients' dignity	☐	☐	☐	☐	☐
Is safe for the staff who use it	☐	☐	☐	☐	☐
Is safe for the patient who is subject to it	☐	☐	☐	☐	☐
I would be prepared to use/undergo this method of containment if I was a staff/patient	☐	☐	☐	☐	☐

Locking the door to people coming in

These questions are about the effects of locking the door to people coming into the ward (like the front door where you live), so that people have to either have a key, or knock/ring to be allowed in.

Q6 Locking the door to people coming in .....

	Strongly agree	*Agree*	*Uncertain*	*Disagree*	*Strongly disagree*
Keeps patients safe by stopping just anyone coming in	☐	☐	☐	☐	☐
Makes the ward unwelcoming to visitors	☐	☐	☐	☐	☐
Helps to keep drugs and/or alcohol off the ward	☐	☐	☐	☐	☐

About you

Q7 Are you male or female?

Male ☐

Female ☐

Q8 What is your age?

Under 25 ☐

25 to 34 ☐

35 to 44 ☐

45 to 54 ☐

55 to 64 ☐

65 or older ☐

Q9 What is your ethnic origin?

- *White* ☐
- *Irish* ☐
- *African* ☐
- *Caribbean* ☐
- *Asian* ☐
- *Other* ☐

Q10 You are a ....?

- *Patient* ☐
- *Visitor* ☐
- *Staff* ☐

Questions for patients only

Q11 How many times have you been admitted to a psychiatric hospital?

- *This is my first admission* ☐
- *I've been on a psychiatric ward two or three times before* ☐
- *I've been admitted to a psychiatric ward four times or more* ☐

Q12 Are you detained in hospital under the Mental Heath Act ("on a section")?

- *Yes* ☐
- *No* ☐

Q13 Have you ever been detained at any time under the Mental Health Act?

- *Yes* ☐
- *No* ☐

Questions for visitors only

Q14 How often have you visited someone (not just the person you are seeing now) on a psychiatric ward?

- *1 - 5 times* ☐
- *6 - 10 times* ☐
- *10 or more times* ☐

Questions for staff only

Q15 What discipline are you?

- *Nurse* ☐
- *Health Care Assistant* ☐
- *Doctor* ☐
- *Occupational Therapist* ☐
- *Psychologist* ☐
- *Other* ☐

Q16 How long have you worked in psychiatry (including training)?

- *1 - 5 years* ☐
- *6 -10 years* ☐
- *11 - 15 years* ☐
- *16 or more years* ☐

For everyone

Q17 Are there any comments you would like to make about the door being locked or unlocked?

Q18 **[Office use only] Research number**

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

References

Adams, B. 2000, "Locked doors or sentinel nurses?", *Psychiatric Bulletin*, vol. 24, pp. 327-328.

Alterman, A. I., Erdlen, D. L., Laporte, D. J., & Erdlen, F. R. 1982, "Effects of illicit drug use in an inpatient psychiatric population", *Addictive Behaviors*, vol. 7, pp. 231-242.

Alterman, A. I., Erdlen, F. R., McLellan, A. T., & Mann, S. C. 1980, "Problem Drinking In Hospitalized Schizophrenic Patients", *Addictive Behaviors*, vol. 5, pp. 273-276.

Anderson, N. & West, M. 1999, *Team Climate Inventory (TCI): user's guide* NFER-NELSON Publishing, Windsor.

Antebi, R. 1967, "Some characteristics of mental hospital absconders", *British Journal of Psychiatry*, vol. 113, pp. 1087-1090.

Ashmore, R. 3 A.D., "Mental Health Nurses Perception of Locked Doors on 'Open' Acute Inpatient Wards in the UK", Tampere, Finland.

Ashmore, R. 2008, "Nurses' accounts of locked ward doors: ghost of the asylum or acute care in the 21st century?", *Journal of Psychiatric and Mental Health Nursing*, vol. 15, pp. 175-185.

Audit Commission 2001, *Brief Encounters. Getting the best from temporary nursing staff.* Audit Commission, London.

Baker, J., Bowers, L., & Owiti, J. 2008, "Ward features associated with high rates of medication refusal by patients.", *General Hospital Psychiatry*.

Barham, P. 2004, *Forgotten Lunatics of the Great War* Yale University Press, New Haven.

Barton, R. 1976, *Institutional Neurosis*, Third Edition edn, John Wright & Sons Ltd, Bristol.

Barton, R. 1956, *Institutional Neurosis* John Wright & Sons Ltd., Bristol.

Bass, B. & Avolio, B. 1995, *Multifactor Leadership Questionnaire* Mind Garden, Redwood City, CA.

Bell, G. M. 1955, "A Mental Hospital with Open Doors", *International Jounral of Social Psychiatry*, vol. 1, pp. 42-48.

Belsey, D., Kuh, E., & Welsch, R. 1980, *Regression Diagnostics: Identifying Influential Data and Sources of Collinearity.* John Wiley and Sons, New York.

Blumberg, A., Cohen, M., Heaten, A., & Klein, D. 1971, "Covert drug abuse among voluntary hospitalised psychiatric patients", *Journal of the American Medical Association*, vol. 217, pp. 1659-1661.

Boardman, J. 2005, "Beyond the Water Towers - The unfinished revolution in mental health services," The Sainsbury Centre for Mental Health.

Bowers, L. & Allan, T. 2006, "The Attitude to Personality Disorder Questionnaire: psychometric properties and results", *Journal of Personality Disorders*, vol. 20, no. 3, pp. 281-293.

Bowers, L., Allan, T., Simpson, A., Jones, J., Van Der Merwe, M., & Jeffery, D. 2008a, "Identifying key factors associated with aggression on acute in-patient psychiatric wards", *Issues in Mental Health Nursing*.

Bowers, L., Allan, T., Simpson, A., Nijman, H., & Warren, J. 2005a, "Adverse incidents, patient flow and nursing workforce variables on acute psychiatric wards: The Tompkins Acute Ward Study", *International Journal of Social Psychiatry*, vol. 53, no. 1, pp. 75-84.

Bowers, L., Jeffery, D., Bilgin, H., Jarrett, M., Simpson, A., & Jones, J. 2008b, "Psychiatric intensive care units: a literature review", *International Journal of Social Psychiatry*, vol. 54, no. 1, pp. 56-68.

Bowers, L., Jones, J., & Simpson, A. 2007, "The demography of nurses and patients on acute psychiatric wards in England", *Journal of Clinical Nursing*.

Bowers, L., Simpson, A., & Alexander, J. 2005, "Real world application of an intervention to reduce absconding", *Journal of Psychiatric and Mental Health Nursing*, vol. 12, pp. 598-602.

Bowers, L., Simpson, A., Alexander, J., Hackney, D., Nijman, H., Grange, A., & Warren, J. 2005b, "The Nature and Purpose of Acute Psychiatric Wards: The Tompkins Acute Ward Study", *Journal of mental Health*, vol. 14, no. 6, pp. 625-635.

Bowers, L., Simpson, A., Alexander, J., Ryan, C., & Carr-Walker, P. 2007a, "Student psychiatric nurses' approval of containment measures: relationship to perception of aggression and attitudes to personality disorder", *International Journal of Nursing Studies*, vol. 44, no. 3, pp. 357-364.

Bowers, L., Simpson, A., Alexander, J., Ryan, C., & Carr-Walker, P. 2004, "Cultures of psychiatry and the professional socialization process: the case of containment methods for disturbed patients", *Nurse Education Today*, vol. 24, pp. 435-442.

Bowers, L., Simpson, A., Eyres, S., Nijman, H., Hall, C., Grange, A., & Phillips, L. 2006, "Serious untoward incidents and their aftermath in acute inpatient

psychiatry: the Tompkins Acute Ward Study", *International Journal of Mental Health Nursing*, vol. 15, pp. 226-234.

Bowers, L., Simpson, A., Nijman, H., & Hall, C. 2008c, "Patient ethnicity and three psychiatric intensive care units compared: the Tompkins Acute Ward Study", *Journal of Psychiatric and Mental Health Nursing*.

Bowers, L., Van der Werf, B., Vokkolainen, A., Muir-Cochrane, E., Allan, T., & Alexander, J. 2007b, "International variation in attitudes to containment measures for disturbed psychiatric inpatients", *International Journal of Nursing Studies*, vol. 44, no. 3, pp. 357-364.

Bowers, L., Whittington, R., Nolan, P., Parkin, D., Curtis, S., Bhui, K., Hackney, D., Allan, T., Simpson, A., & Flood, C. 2007c, *The City 128 Study of Observation and Outcomes on Acute Psychiatric Wards. Report to the NHS SDO Programme* NHS SDO Programme, London.

Bowers, L., Alexander, J., Callaghan, P., Eales, S., Guy, S., McCann, E., & Ryan, C. 2002, "Safety and security policies on psychiatric acute admission wards: results from a London-wide survey", *Journal of Psychaitric and Mental Health Nursing*, vol. 9, pp. 427-433.

Bowers, L., Alexander, J., & Gaskell, C. 2003, "A trial of an anti-absconding intervention in acute psychiatric wards", *Journal of Psychiatric & Mental Health Nursing*, vol. 10, no. 4, pp. 410-416.

Bowers, L., Crowhurst, N., Alexander, J., Eales, S., Guy, S., & McCann, E. 2003, "Psychiatric nurses' views on criteria for psychiatric intensive care: acute and intensive care staff compared", *International Journal of Nursing Studies*, vol. 40, pp. 145-152.

Bowers, L., Douzenis, A., Galeazzi, G., Forghieri, M., Tsopelas, C., Simpson, A., & Allan, T. 2005c, "Disruptive and dangerous behaviour by patients on acute psychiatric wards in three European centres", *Social Psychiatry and Psychiatric Epidemiology*, vol. 40, pp. 822-828.

Bowers, L., Jarrett, M., & Clark, N. 1998, "Absconding: a literature review", *Journal of Psychiatric & Mental Health Nursing*, vol. 5, no. 5, pp. 343-353.

Bowers, L., Jarrett, M., Clark, N., Kiyimba, F., & McFarlane, L. 1998, *Runaway patients. Report to the GNC Trust.* City University, London.

Bowers, L., Jarrett, M., Clark, N., Kiyimba, F., & McFarlane, L. 1999a, "Absconding: how and when patients leave the ward.", *Journal of Psychiatric & Mental Health Nursing*, vol. 6, no. 3, pp. 207-211.

Bowers, L., Jarrett, M., Clark, N., Kiyimba, F., & McFarlane, L. 1999b, "Absconding: why patients leave.", *Journal of Psychiatric & Mental Health Nursing*, vol. 6, no. 3, pp. 199-205.

Bowers, L., Jarrett, M., Clark, N., Kiyimba, F., & McFarlane, L. 2000, "Determinants of absconding by patients on acute psychiatric wards", *Journal of Advanced Nursing*, vol. 32, no. 3, pp. 644-649.

Bowers, L. & Park, A. 2001, "Special Observation in the Care of psychiatric Inpatients: A Literature Review", *Issues in Mental Health Nursing*, vol. 22:769-786.

Bowers, L., Simpson, A., & Alexander, J. 2003, "Patient-staff conflict: Results of a survey on acute psychiatric wards", *Social Psychiatry & Psychiatric Epidemiology.*, vol. 38, no. 7, pp. 402-408.

Boyatzis, R. 1998, *Transforming qualitative information: Thematic analysis and code development* Sage Publications, California.

Cherry, S. 2003, *Mental health care in modern England*, 1 edn, The Boydell Press, Suffolk.

Clarke, L. 1993, "The opening of doors in British mental hospitals in the 1950's", *History of Psychiatry*, vol. 4, pp. 527-551.

Coleman, W. B. 1966, "Unauthorized departures from mental hosptials", *Mental hygiene*, vol. 50, pp. 47-53.

Congdon, P. 1996, "Suicide and Parasuicide in London: A Small-area Study.", *Urban Studies*, vol. 33, pp. 137-158.

Crabtree, B. & Miller, W. 1999, "A template approach to text analysis: Developing and using codebooks.," in *Doing qualitative research*, B. Crabtree & W. Miller, eds., Sage, Newbury Park, pp. 163-177.

Crowhurst, N. & Bowers, L. 2002, "Philosophy, care and treatment on the psychiatric intensive care unit: themes, trends and future practice", *Journal of Psychiatric and Mental Health Nursing*, vol. 9, pp. 689-695.

Deisenhammer, E., DeCol, C., Honeder, M., & Hinterhuber, H. 2000, "In-patient suicide in psychiatric hospitals", *Acta Psychiatrica Scandinavica*, vol. 102, pp. 290-294.

Dumont, M., Daniels, R. S., Margolis, F. M., Carson, R. C., & Ham, J. 1960, "Patients and staff reaction to a change in procedure on a psychiatric ward", *Disease of the Nervous System*, vol. 21, pp. 209-212.

Feir-Walsh, B. J. & Toothaker, L. E. 1974, "An Empirical Comparison of the Anova F-Test, Normal Scores Test and Kruskal-Wallis Test Under Violation of Assumptions", *Educational and Psychological Measurement*, vol. 34, no. 4, pp. 789-799.

Folkard, S. 1960, "Aggressive behaviour in relation to open wards in a mental hospital.", *Mental hygiene*, vol. 44, pp. 155-161.

Garcia, I., Kennett, C., Quraishi, M., & Durcan, G. 2005, *Acute Care 2004. A national survey of adult psychiatric wards in England* Sainsbury Centre for Mental Health, London.

Goffman, E. 1961, *Asylums: Essays on the Social Situation of Mental Patients and other inmates* Penguin, London.

Goldstein, H., Browne, W., & Rasbash, J. 2007, "Partitioning variation in multilevel models", *Understanding Statistics*, vol. 1, no. 4, pp. 223-231.

Gostin, L. 1986, *Institutions observed : towards a new concept of secure provision in mental health* King Edward's Hospital Fund for London, London.

Haglund, K., Van Der Meiden, E., Von Knorring, L., & Von Essen, L. 2007, "Psychiatric care behind locked doors. A study regarding the frequency of and the reasons for locked psychiatric wards in Sweden", *Journal of Psychiatric and Mental Health Nursing*, vol. 14, pp. 49-54.

Haglund, K., Von-Knorring, L., & von-Essen, L. 2006, "Psychiatric wards with locked doors - advantages and disadvantages according to nurses and mental health nurse assistants", *Journal of Clinical Nursing*, vol. 15, pp. 387-394.

Haglund, K. & Von Essen, L. 2005, "Locked entrance doors at psychiatric wards - Advantages and disadvantages according to voluntarily admitted patients", *Nordic Journal of Psychiatry*, vol. 59, no. 6, pp. 511-515.

Holloway, F., Carson, J., & Davis, S. 2002, "Rehabilitation in the United Kingdom: Research, policy, and practice", *Canadian Journal of Psychiatry*, vol. 47, no. 7, pp. 628-634.

Hunt, I., Kapur, N., Webb, R., Robinson, J., Burns, J., Turnbull, P., Shaw, J., & Appleby, L. 2007, "Suicide in current psychiatric in-patients: a case-control study", *Psychological Medicine*, vol. 37, pp. 831-837.

Isaac, M., Isaac, M., & Holloway, F. 2005, "Is cannabis an anti-psychotic? The experience in psychiatric intensive care", *Human Psychopharmacology: Clinical and Experimental*, vol. 20, no. 3, pp. 207-210.

Jones, K. 1960, *Mental Health and Social Policy, 1845-1959* London: Routledge and Kegan Paul.

Kiely, J. 1991, "Some conceptual problems in multivariable analysis of perinatal mortality", *Paediatric and Perinatal Epidemiology*, vol. 5, pp. 243-257.

Koltes, J. A. 1956, "Mental hospitals with open doors", *American Journal of Psychiatry*, vol. 113, pp. 250-253.

Martin, J. P. 1984, *Hospitals in Trouble* Oxford: Blackwell..

Maslach, C. & Jackson, S. 1981, *The Maslach Burnout Inventory.* Consulting Psychologists Press, Palo Alto, CA.

McKeown, M. & Leibling, H. 1995, "Staff peception of illicit drug use within a special hospital", *Journal of Psychiatric and Mental Health Nursing*, vol. 2, pp. 343-350.

Moos, R. 1997, *Evaluating Treatment Environments.*, 2nd edn, Transaction Publishers, New Brunswick.

Murphy, E. 1991, *After the Asylums - Community care for people with mental illness* Faber and Faber Ltd., London.

Neter, J., Kutner, M., Nactsheim, C., & Wasserman, W. 1996, *Applied linear statistical models.* WCB McGraw-Hill, Massachusetts.

Nijman, H., Allertz, W., Merckelbach, H., & Ravelli, D. 1997, "Aggressive Behaviour on an Acute Psychiatric Admissions Ward", *European Journal of Psychiatry*, vol. 11, no. 2, pp. 106-114.

Niskanen, P. 1974, "Suicide in Helsinki psychiatric hospitals 1964-1972", *Pschiatria Fennica*, vol. 1974, pp. 275-280.

Noble, M., Wright, G., Dibben, C., Smith, G., McLennan, D., Anttila, C., Barnes, H., Mokhtar, C., Noble, S., Avenell, D., Gardner, J., & Lloyd, M. 2004, *The English Indices of Deprivation 2004* OPDM Publications, West Yorkshire.

Phillips, P. & Johnson, S. 2003, "Drug and Alcohol Misuse Among In-Patients with Psychotic Illnesses in Three Inner-London Psychiatric Units", *Psychiatric Bulletin*, vol. 27, no. 217, p. 220.

Priede, S., Babesconyi, A., Fioritti, A., Hansson, L., Killian, R., Torres- Gonzales, F., Turner, T., & Wiersman, D. 2005, "Reinstitutionalisation in mental health care: comparison of data on service provision from six European countries", *British Medical Journal*, vol. 330, pp. 123-126.

Quirk, A., Lelliot, P., & Seale, C. 2006, "The permeable institution: An ethnographic study of three acute psychiatric wards in London", *Social Science & Medicine*, vol. 63, pp. 205-2117.

Quirk, A., Lelliott, P., & Seale, C. 2004, "Service users' strategies for managing risk in the volatile environment of an acute psychiatric ward", *Social Science & Medicine.*, vol. 59, no. 12, pp. 2573-2583.

Rands, G. 2004, "The use of 'drug dogs' in psychiatry", *Psychiatric Bulletin*, vol. 28, no. 10, p. 383.

Richmond, I., Dandridge, L., & Jones, K. 1991, "Changing nursing practice to prevent elopement", *Journal of Nursing Care Quality*, vol. 6, no. 1, pp. 73-81.

Rittmannsberger, H., Sartorius, N., Brad, M., Burtea, V., Capraru, N., Cernak, P., Dernovçek, M., Dobrin, I., Frater, R., Hasto, J., Hategan, M., Haushofer, M., Kafka, J., Kasper, S., Macrea, R., Nabelek, L., Nawka, P., Novotny, V., Platz, T., Pojar, A., Silberbauer, C., Fekete, S., Wancata, J., Windhager, E., Zapotoczky, H.-G., & Zöchling, R. 2004, "Changing aspects of psychiatric inpatient treatment. A census investigation in five European countries", *European Psychiatry*, vol. 19, pp. 483-488.

Robinson, A. & Wolkind, S. 1970, "Amphetamine abuse amongst psychiatric in-patients: the use of gas chromotography", *British Journal of Psychiatry*, vol. 117, pp. 643-644.

Ryan, C. & Bowers, L. 2006, "An analysis of nurses' post-incident manual restraint reports", *Journal of Psychaitric and Mental Health Nursing*, vol. 13, pp. 527-532.

Ryan, J. H. 1962, "The therapeutic value of a closed ward", *Journal of Nervous and Mental Disease*, vol. 134, pp. 256-262.

Ryan, J. P. A. 1956, "The open door system in the mental hospital", *Journal of the Irish Medical Association*, vol. 39, no. 234, pp. 175-179.

Sacks, M. H., Nininger, J. E., & La Torre, V. 1982, "Patient and Staff Attitudes Toward Locked and Unlocked Units", *Hospital & Community Psychiatry* pp. 152-153.

Sacks, M. H., Nininger, J. E., & La Torre, V. 2000, "Patient and Staff Attitudes Toward Locked and Unlocked Units", *Hospital & Community Psychiatry* p. 152.

Sandford, T. 1995, "Drug use is increasing", *Nursing Standard*, vol. 9, pp. 16-17.

Scott, D. 1956, "Chronic mental patients' reactions to opening their ward", *American Journal of Psychiatry*, vol. 113, p. 366.

Sheppard, D. 1996, *Learning the Lessons*, The Zito Trust, London.

Snow, H. B. 1958, "The open door hospital", *Canadian Journal of Public Health*, vol. 49, no. 9, pp. 363-369.

Soliday, S. M. 2004, "A Comparison of Patient and Staff Attitudes toward Seclusion", *The Journal of Nervous and Mental Disease*, vol. 173, no. 5, pp. 282-291.

Swindall, L. E. & Molnar, G. 1985, "Open doors and runaway patients: A management dilema", *Perspectives in psychiatric nursing*, vol. 23, no. 4, pp. 146-149.

Ukoumunne, O. C., Gulliford, M., Chinn, S., Sterne, J., & Burney, P. 2007, *Methods for evaluating area-wide and organisation-based interventions in health and health care: a systematic review. HTA report 1999; 3(5)*.

Van Putten, T., Crumpton, E., & Yale, C. 1976, "Drug refusal in schizophrenia and the wish to be crazy", *Archives in General Psychiatry*, vol. 33, pp. 1443-1446.

Wake, F. R. 1961, "Some observations on the "open door" in Canadian and other hospitals", *Canadian Psychiatric Association Journal*, vol. 6, no. 2, pp. 96-102.

Whitley, E., Gunnell, D., Dorling, D., & Davey-Smith, G. 1999, "Ecological study of social fragmentation, poverty, and suicide", *British Medical Journal*, vol. 319, pp. 1034-1037.

Wisebord, N., Denber, C. H., Charatan, F. B., & Travis, J. H. 1958, "Patient reactions to the "open door"", *American Journal of Psychiatry*, vol. 115, no. 6, pp. 518-521.

Yesavage, J. & Zarcone, V. 1983, "History of drug abuse and dangerous behaviour in inpatient schizophrenics", *Journal of Clinical Psychiatry*, vol. 44, pp. 259-261.

Disclaimer

This report presents independent research commissioned by the National Institute for Health Research (NIHR). The views and opinions expressed by authors in this publication are those of the authors and do not necessarily reflect those of the NHS, the NIHR, the NIHR SDO programme or the Department of Health. The views and opinions expressed by the interviewees in this publication are those of the interviewees and do not necessarily reflect those of the authors, those of the NHS, the NIHR, the NIHR SDO programme or the Department of Health

Addendum

This document was published by the National Coordinating Centre for the Service Delivery and Organisation (NCCSDO) research programme, managed by the London School of Hygiene & Tropical Medicine.

The management of the Service Delivery and Organisation (SDO) programme has now transferred to the National Institute for Health Research Evaluations, Trials and Studies Coordinating Centre (NETSCC) based at the University of Southampton. Prior to April 2009, NETSCC had no involvement in the commissioning or production of this document and therefore we may not be able to comment on the background or technical detail of this document. Should you have any queries please contact sdo@southampton.ac.uk.