Associations between ward climate and patient characteristics in a secure forensic mental health service

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Associations between ward climate and patient characteristics in a secure forensic mental health service

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Ward climate is associated with patient satisfaction and, potentially, with improved outcomes but increased understanding of its relationship with individual patient characteristics is required. We investigated relationships between patient (N = 63) gender, perceived risk, risk behaviour, therapeutic engagement (session attendance), psychopathology and ward climate in a forensic psychiatric hospital. Lower security levels were significantly associated with better patient cohesion (PC), experienced safety (ES) and therapeutic hold (TH). Female gender predicted PC and ES. Higher perceived risk was associated with lower PC after controlling for security level and gender. Diagnosis of personality disorder or psychosis was associated with higher ES. Lower levels of engagement predicted greater TH. The relationship between patient characteristics and ward climate in forensic settings is complex. Prospective studies are needed to further establish determinants of ward climate, particularly those aspects of patient risk that are associated with poorer PC.

Keywords: ward climate; risk; diagnosis; gender; security; EssenCES

Introduction

Ward climate, sometimes termed ward atmosphere, has long been viewed as a potentially important factor underlying the efficacy of psychiatric inpatient facilities (World Health Organization [WHO], 1953). Moos and Houts (1968, p. 604) were the first to examine ward climate in general psychiatric settings, describing it as the ‘perception of the social-cultural environment, although it also taps [the] prevailing philosophy and value system to some extent’, but it has also been subject to examination in secure forensic settings (Bressington, Stewart, Beer, & MacInnes, 2011; Brunt, 2008; Brunt & Rask, 2007;
Goldmeier & Silver, 1988; Kirby, 1997; Long, Anagnostakis, et al., 2011; Nesset, Rossberg, Almvik, & Friis, 2009; Schalast, Redies, Collins, Stacey, & Howells, 2008). Ward climate should be dynamic and responsive to patients’ needs (Norton, 2004) and should promote recovery through a process of encouraging hope, individual empowerment and respect for the patient as a consumer and partner (Bellack, 2006). Research encouragingly suggests that ward climate is associated with patient satisfaction (Rossberg & Friis, 2004), motivation, engagement, therapeutic alliance (Johansson & Eklund, 2004; Long, Anagnostakis, et al., 2011), and functional improvement (Melle et al., 1996). Based on these data, some have proposed that by improving ward climate, we could improve the treatment alliance, and thereby improve patient outcome (Johansson & Eklund, 2004). Improved understanding of the determinants and influences on ward climate therefore holds considerable potential to improve forensic mental health services.

A number of standardised assessments have been developed to capture ward climate including the Good Milieu Index (GMI; Friis, 1986a; Rossberg & Friis, 2003); the Ward Atmosphere Scale (WAS; Moos & Houts, 1968); and the Community-Oriented Programs Environment Scale (COPES; Moos, 1972). There is, however, limited empirical evidence for the psychometric properties of both the GMI and the COPES. While the WAS, with established psychometric properties, represented a step forward it has been viewed as overly long (100 items) and outdated in its terminology (Rossberg & Friis, 2003). More recently, the Essen Climate Evaluation Schema (EssenCES, Schalast et al., 2008) was designed to measure ward climate reliably and economically, specifically in forensic populations, and EssenCES defined a supportive, therapeutic ward climate along three dimensions: ‘therapeutic hold’ (TH), ‘patient cohesion and mutual support’ (PC) and ‘experienced safety’ (ES). While a body of research has developed around the factors that are associated with or determine ward climate much of this has been conducted using the older and unvalidated tools. Only a limited amount of research has been conducted using the EssenCES. Bressington et al. (2011) studied patients (N = 44) in secure services in one UK NHS Trust and found ward climate ratings to be positively associated with a valid measure of patient satisfaction, though less strongly associated than satisfaction and a measure of the patient–keyworker relationship. Livingston, Nijdan-Jones, and Brink (2012) found EssenCES ratings of 30 patients in a Canadian forensic mental health hospital to be positively associated with their ratings of recovery-oriented care such that those who perceived the hospital to deliver services in accord with recovery principles held more positive views about the ward climate. The EssenCES ES subscale was positively associated with patient measures of feeling respected by staff and feeling welcomed by services. In two studies of secure women’s mental health services, medium-secure wards received less favourable EssenCES scores than low-secure wards (Long, Anagnostakis, et al., 2011), while movement to modern facilities benefited ward climate (Long, Langford, Clay, Craig, & Hollin,
EssenCES has also been used as an outcome measure in evaluation studies (Braham, Heasley, & Akiens, 2013; Kerfoot, Bamford, & Jones, 2012; Livingston, Nijdan-Jones, Lapsley, Calderwood, & Brink, 2013; Taylor & Trout, 2013), but these have not investigated patient features that may be associated with ward climate.

A clear picture of the patient-related determinants of ward climate has yet to emerge, in part because studies have defined and measured ward environment differently, sometimes using poorly validated tools and underpowered analyses. The lack of literature about the EssenCES in general, coupled with the need to explore the temporal stability of ward climate and staff–patient differences, underpinned this study.

**Aim**

The main aim of the study was to explore whether and how patient’s demographic and clinical characteristics are associated with the ward climate as measured using the EssenCES. There were three main hypotheses:

1. Ward climate as measured on the PC subscale will be more positive in wards where patients have lower levels of psychopathology, fewer risk-related behaviours and lower ratings of future risk.
2. Ward climate as measured on the ES subscale will be more positive in wards where patients have lower levels of psychopathology, fewer risk-related behaviours and lower ratings of future risk.
3. Ward climate as measured on the TH subscale will be more positive on wards where patients have better therapeutic engagement in terms of session attendance.

In order to maximise the generalisability of findings across secure settings for each hypothesis, we controlled for gender and level of security. Secondary aims were to investigate ward climate stability over time and any systematic differences between staff and patient ratings.

**Method**

**Setting**

The study was carried out in the open \((n = 1)\), low \((n = 9)\) and medium \((n = 3)\) secure wards of the adult mental health care pathways of a large UK psychiatric hospital.

**Participants**

Sixty-three current inpatients agreed to take part in the study (see Table 1). Patients were eligible for inclusion if they were of working age \((18–65\ years)\),
had capacity to consent and were resident on one of the wards at the time of a routinely conducted EssenCES ward climate survey. Exclusion criteria included having a learning disability, a history of significant head injury or substance abuse as indicated by a positive result from a random test in the last six months.

**Procedure**

The study protocol was approved by a National Health Service Research Ethics Committee. All participants gave informed written consent after a written and verbal description of the study’s aims and objectives. Participants were asked to consent to the researchers accessing their clinical records to gather data that are routinely collected during clinical practice.

**Measures**

Measures comprised (i) routine ward climate data were collected by means of a comprehensive patient and staff survey on each ward at six-month intervals and (ii) clinical data recorded in the patient record and charts.

**Ward climate**

*EssenCES* (Schalast et al., 2008). The EssenCES is a 15-item measure of ward climate. It has three dimensions: ‘patient cohesion and mutual support’ (PC; e.g. ‘patients care for each other’), ‘experienced safety’ (ES; e.g. ‘there are some really aggressive patients in this unit’) and ‘TH’ (e.g. ‘staff take a personal interest in the progress of patients’). Its psychometric properties have been validated for UK forensic samples (Howells et al., 2009; Tonkin et al.,...
Ward survey data were collected in February/March 2012 and used to test the main study hypotheses. In line with the authors’ recommendations, the mean ward score from all patients who contributed was used rather than individual patient scores (Schalast et al., 2008). Two previous surveys collected 6 and 12 months earlier in 2011 were used to test the secondary hypothesis relating to stability of ward climate over time. Of the 13 wards included in this study, 12 held records of the number of patients and staff who had completed it (N = 94). The mean patient response rate for the EssenCES survey was 54.4% (SD = 16.4, range: 31.3–78.6%), while the staff response rate was 46.6% (SD = 15.9, range: 26.9–70.4%).

**Risk**

*Historical, Clinical and Risk Management 20 (HCR-20; Webster, Douglas, Eaves, & Hart, 1997).*

The HCR-20 is a dynamic risk assessment tool designed for use with a range of offender populations, including those with mental illness or personality disorder. The HCR-20 reliably predicts future violence and has good inter-rater reliability (see Douglas & Webster [1999] for a comprehensive review). Each of the 20 items is rated on a three-point scale (0 = item not present, 1 = item possibly present and 2 = item definitely present) and summed to produce a total risk score. The HCR-20 is completed on a six-monthly basis by the supervising Multi-Disciplinary Team.

**Diagnosis**

Diagnoses were determined by the patients’ clinical team, led by a consultant psychiatrist and recorded in the patient’s medical record using ICD-10 criteria and codes (WHO, 2010). All diagnoses were extracted and each patient allocated to one of seven categories on the basis of their primary disorder: ‘psychotic’, ‘affective’, ‘anxiety disorder’, ‘personality disorder’, ‘developmental disorder’, ‘substance misuse’ and ‘other’.

**Current clinical presentation**

The Clinical (C) scale of the HCR-20 was used as a proxy indicator of the patients’ current presentation. It comprises five items from the C scale (lack of insight, negative attitudes, active symptoms of major mental illness; impulsivity and unresponsiveness to treatment), summed to give a total Clinical subscale score.

**Risk-related incidents**

*Overt Aggression Scale* (OAS; Yudofsky, Silver, Jackson, Endicott, & Williams, 1986). Incidents of aggressive behaviour are routinely recorded in
each patient’s record using the OAS. The tool is a widely used measure of aggressive behaviour comprising four scales measuring different types of aggression: verbal aggression, aggression against objects, aggression against the self and aggression against others. Each behaviour is rated for type and severity on a four-point scale (1 least to 4 most severe), each with descriptive anchors. Weighting was applied as described by Alderman, Knight, and Morgan (1997) such that acts of physical aggression against objects, self and others are multiplied by factors of two, three and four, respectively. The OAS has established inter-rater reliability and validity (Yudofsky et al., 1986). Risk-related incidents were identified for the two-week period during which the EssenCES was collected on each ward.

**Treatment engagement**

Treatment engagement was established from the absolute count of programmed therapeutic sessions the participants attended in the two weeks during which the EssenCES ward climate survey was carried out. Leave was not counted as a session, due to difficulty distinguishing therapeutic from recreational leave.

**Current leave status**

Each patient’s current leave status was assigned to one of five categories (see Table 1).

**Analysis**

All data were analysed using PASW statistics 18.0 (SPSS Inc, 2007). To avoid multiple testing, linear multiple regressions were used to explore the hypothesised relationships between patient characteristics and the three EssenCES factors. A power calculation for multiple regression suggested a minimum sample of 57 participants based on an anticipated medium effect size ($f^2$) of .25 and desired statistical power of .8 at a probability level of .05. Hypothesis 1 was tested by constructing a model for PC scores and Hypothesis 2 by constructing a model for ES scores; each using diagnostic category, current psychopathology, risk incidents and risk assessment scores as predictors. Hypothesis 3 was tested by creating a model of TH scores, using session attendance as the predictor. For generalisability to other settings, all models were controlled for gender and level of security by adding variables into the regression in two blocks. In the first block, gender and level of security were modelled; in the second block, the other predictor variables were added. Table 2 shows a summary of the linear regression models used to test the study hypotheses and the regression coefficients for both the control variables and the predictor variables for each regression model, as well as the variable’s level of significance. Suitability of the data was checked using P–P plots; all models were checked for
Table 2. Coefficients of the regression models for the different scales of the EssenCES.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient (β)</th>
<th>Significance (p)</th>
<th>Coefficient (β)</th>
<th>Significance (p)</th>
<th>Coefficient (β)</th>
<th>Significance (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient cohesion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Model fit:</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>$R^2$ = .79;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$F(7,55) = 29.476, p &lt; .001$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>4.278*</td>
<td>&lt;.001*</td>
<td>1.841*</td>
<td>&lt;.001*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of security</td>
<td>−2.341*</td>
<td>&lt;.001*</td>
<td>−2.51*</td>
<td>&lt;.001*</td>
<td>−.457</td>
<td>.49</td>
</tr>
<tr>
<td>HCR-20 total</td>
<td>−.169*</td>
<td>.027*</td>
<td>.026</td>
<td>.244</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCR-20: clinical items</td>
<td>−.152</td>
<td>.090</td>
<td>.076</td>
<td>.736</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk-related incidents</td>
<td>.005</td>
<td>.376</td>
<td>−.006</td>
<td>.229</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personality disorder</td>
<td>.708</td>
<td>.131</td>
<td>1.141*</td>
<td>.004*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychosis</td>
<td>.281</td>
<td>.506</td>
<td>.996*</td>
<td>.006*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sessions attended</td>
<td>−</td>
<td>−</td>
<td>−.101*</td>
<td>.003*</td>
<td></td>
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</tr>
</tbody>
</table>

| **Experienced safety** |                 |                 |                 |                 |                 |                 |
| Model fit:            |                 |                 |                 |                 |                 |                 |
| $R^2$ = .68;          |                 |                 |                 |                 |                 |                 |
| $F(7,55) = 16.611, p < .001$ |                 |                 |                 |                 |                 |                 |
| Sex                   | 1.841*          | <.001*          | 1.841*          | <.001*          |                 |                 |
| Level of security     | −2.51*          | <.001*          | −2.51*          | <.001*          | −.897*          | <.001*          |
| HCR-20 total          | −.026           | .244            | .026            | .244            |                 |                 |
| HCR-20: clinical items| .076            | .736            | .076            | .736            |                 |                 |
| Risk-related incidents| −.006           | .229            | −.006           | .229            |                 |                 |
| Personality disorder  | 1.141*          | .004*           | 1.141*          | .004*           |                 |                 |
| Psychosis             | .996*           | .006*           | .996*           | .006*           |                 |                 |
| Sessions attended     | −                 | −               | −.101*          | .003*           |                 |                 |

| **Therapeutic hold**  |                 |                 |                 |                 |                 |                 |
| Model fit:            |                 |                 |                 |                 |                 |                 |
| $R^2$ = .32;          |                 |                 |                 |                 |                 |                 |
| $F(2,45) = 29.476, p < .001$ |                 |                 |                 |                 |                 |                 |

1The variables sex and level of security were entered in Block 1; the predictor variables in Block 2 of each regression. Coefficients for the second model are reported.

*Coefficients that are significant at below $p = .05$ are marked with an asterisk.
multicollinearity and none was detected. Data were thus deemed suitable for untransformed analysis. In addition, one-way ANOVAs or, where appropriate, the non-parametric equivalent were conducted to determine the stability of ward environment over three time-points, and to test the relationship between staff and patient ratings. For all statistical tests, significance was set at $p < .05$.

**Results**

Eighty-six patients were referred to the study and 63 (73.3%) agreed to participate, their demographic and clinical characteristics are shown in Table 1. In addition to the primary diagnosis, most ($n = 36; 57.1\%$) patients had at least one additional comorbid diagnosis (mean number of ICD-10 diagnoses = 2.2, range 1–4).

**EssenCES total and subscale scores**

The EssenCES scores used in the study comprised ward means from a routinely conducted ward climate survey. Total mean score was 37.0 (range 25.3–48.9; SD = 4.8); mean PS score was 11.0 (range 4.5–16.1; SD = 2.8); mean ES score was 13.2 (range 9.5–16.4; SD = 1.9); and mean TH score was 12.7 (range 7.7–17.5; SD = 2.5). Scores were similar to normative data published in the original EssenCES translation study (Schalast et al., 2008). Normal Q–Q plots confirmed that the ward climate data were normally distributed.

**Patient characteristics and ward climate**

**Hypothesis 1: patient cohesion model**

Gender, security level and the HCR-20 score explained a significant portion of the variance in PC score. The HCR-20 total score was the only hypothesised patient characteristic predictor that was significant in the PC model (see Table 2) and Hypothesis 1 therefore was only partially supported.

**Hypothesis 2: experienced safety model**

Both control variables (gender and level of security) were significantly related to ES. Of the predictor variables, only the presence of a personality disorder ($p = .004$) and psychosis ($p = .006$) explained a significant portion of the variance in patient safety ratings. Contrary to Hypothesis 1, the number of risk-related incidents, as well as both the total HCR-20 score and the ‘Clinical’ (C) HCR-20 sub-scale scores failed to explain a significant portion of the variation in ES ratings (see Table 2).
Hypothesis 3: TH model

Gender and security level were entered as control variables for the purpose of improved generalisability. Gender was not a significant predictor of TH ratings, while level of security was. The model suggests that of the two patient characteristics hypothesised to be related to TH, only the number of sessions attended in the fortnight around the ward climate survey explained a significant amount of variation ($p = .003$). However, the association between session attendance and ward climate was in the opposite direction to that hypothesised, with lower session attendance predicting more positive ward climate. This may be explained by the fact that episodes of leave were not counted as scheduled therapeutic sessions since it was not possible to distinguish between therapeutic and purely recreational leave from retrospective data. In an attempt to test that explanation, the model for TH was controlled for level of leave in a post hoc analysis. Although no longer significant, the reciprocal relationship between session attendance and TH remained (see Table 2).

Stability of the ward climate

Analysis suggested that there was no significant difference on climate ratings by patients over three different time-points for PC ($F[2,32 \text{ d.f.}] = .33, p = .72$); TH ($F[2,32 \text{ d.f.}] = .44, p = .65$) or ES ($F[2, 18.6 \text{ d.f.}] = .72, p = .5$). Similarly, staff ratings of PC ($F[2,32 \text{ d.f.}] = .44, p = .65$), TH ($F[2,32 \text{ d.f.}] = 1.51, p = .24$), or ES ($F[2,32 \text{ d.f.}] = .77, p = .47$) did not differ between rating points.

Differences between staff and patients

One-way ANOVA analysis showed that there was a significant statistical difference between staff and patient ratings of the ES ($F[1,66] = 4.729, p = .033$) and TH ($F[1,66] = 44.978, p < .001$) subscales of the EssenCES. Patients rated ES higher, while staff rated TH higher.

Discussion

This study explored associations between ward climate, measured using the EssenCES, and patient characteristics in a UK secure in-patient setting. We focused on a defined finite range of patient characteristics in this study, determined by our a priori research hypotheses. In contrast to previous work, this study was adequately powered to detect significant differences where they were present. Further, by examining the three subscales of the psychometrically valid EssenCES scale, this study adds detail to the picture of the relationship between patient characteristics and the more subtle nuances of ward climate.
Patient characteristics and ward climate

Our finding that female wards were rated by their patients as more cohesive and safer is consistent with previous studies of ward climate (Brunt, 2008; Friedman, Jeger, & Slotnick, 1980). In contrast, we did not find a relationship between gender and how therapeutic the environment felt. This partially replicates previous findings (Bressington et al., 2011; Kirby, 1997; Pedersen & Karterud, 2007) that did not find gender to be a significant predictor of ward climate. Similarly to Brunt’s (2008) study, men in the current sample were more diagnostically heterogeneous than women and this could potentially confound the result.

Perhaps counter-intuitively, wards with a greater proportion of psychotic patients and more patients with personality disorders had higher ratings of ES. This contrasts with existing literature (Bressington et al., 2011; Kirby, 1997; Vaglum, Friis, & Karterud, 1985) and suggests a more complex relationship between ward climate and diagnosis than that described previously. For example, for patients with depression, motivation has been advanced as a mediating factor (Beazley & Gudjonsson, 2011). In this study, those wards with less psychosis and personality disorder diagnoses tended to be on the learning disability as opposed to the mental disorder pathway, although the individuals recruited into the study had developmental disorder rather than a learning disability. It may be that those wards experienced greater levels of perceived risk, perhaps as a function of a greater proportion of less able and more vulnerable patients in that setting.

Contrary to Hypotheses 1 and 2, the weighted OAS scores of risk-related incidents in which participants were involved did not predict ES or PC significantly. There are a number of potential theoretical and methodological explanations for this. First, there are complex interactions between aggression and gender, diagnosis and ethnicity (Kho, Senski, Mortimer, & Corcos, 1998) that could have acted as confounds in the relationship. Secondly, as there is a strong link between violence and level of security (Long, Anagnostakis, et al., 2011), controlling for level of security in our analysis might have obscured the effect of risk-related incidents. Third, to control for one possible confounding variable, one exclusion criteria was past six-month positive test for substance use from random test. This may not have effectively screened out all such individuals. Finally, the study design, by virtue of needing informed consent, may have introduced a selection bias, excluding the most aggressive individuals and making patient risk data less representative of the entire ward on which they resided.

The clinical (C) items of the HCR-20 did not predict either ES or PC. It is possible that the clinical items alone failed to reach significance because they are inadequate as an index of the patients’ current clinical state at the time of testing. The HCR-20 risk total score, however, did predict PC scores in the hypothesised direction, despite the model being controlled for level of security.
and using risk-related incidents as another predictor variable. This suggests that individuals with higher HCR-20 scale scores are related to the ward climate, but in a way that is not explained sufficiently by either level of security or aggressive behaviours per se. The precise mechanism for this cannot be explained using the current data, and warrants further investigation. HCR-20 scores represent clinical predictions related to risk for the next six months; teams remain fairly accurate in identifying who is at greater risk over that time frame (Douglas & Webster, 1999). Although causality cannot be inferred, it is possible that individuals who are deemed to be more likely to present a risk of violence influence cohesion negatively. Alternatively, a more cohesive ward climate might lower the risk of violence in its patients.

In contrast to the outcome predicted by Hypothesis 3, higher session attendance was related to lower TH ratings, even though the coefficient was only small ($\beta = -0.1$). There are a number of possible explanations for this. First, the amount of leave could be a confound in this relationship: lower security wards have better ward climate, but patients also have more leave, reducing the opportunity to engage in scheduled therapeutic sessions (if, as in this study, leave was not counted as a scheduled session). Patients on the open ward, for example, had the opportunity to take community leave often at their own discretion, but attended fewer formally scheduled therapeutic sessions; yet the ward climate on this ward was rated very highly. Post-hoc analysis indicated that the reciprocal relationship between session attendance and TH remained, suggesting that recreational leave could not fully explain this counterintuitive finding. An alternative explanation could be selection bias. Those individuals who agreed to participate might have been the same individuals (the compliant) who regularly attended sessions, even on the more acute wards. Ward climate ratings, however, are likely to have been influenced by everyone on the ward, even those who chose not to complete the EssenCES survey. Such selection bias could further contribute to spurious results.

Non-patient characteristics and ward climate

Wards with higher levels of security had lower patient ratings of cohesion, safety and TH. These findings are broadly in line with previous literature. Long, Anagnostakis, et al., (2011) found that patients in medium-secure wards rated ward climate lower than patients in low-secure wards. It is worth noting that Long et al. sampled from some of the same wards later used in this study; so, theoretically, this could be an idiosyncratic feature of the setting. The data support the hypothesis that ward climate is inversely related to security level.

Stability of ward climate

Ward climate was stable over three consecutive time-points, reproducing previous work with other measures indicating ward atmosphere remains stable.
Despite staff and patient changes over time (Jansson & Eklund, 2002; Kobos, Redmond, & Sterling, 1982; Moos & Houts, 1968; Schmidt, Wakefield, & Andersen, 1979). The EssenCES was routinely and regularly repeated in the current study in an effort to detect and monitor problems in the ward climate and improve it. After each survey, a consultation was held with junior and senior clinical staff that incorporated patient views, management plans were developed to improve ward climate. Despite those efforts, ward climate did not change significantly. This is disappointing and requires further exploration. It is possible that staff and patient feedback, and management changes were simply ineffective or were not truly implemented: for example no data are available on compliance with environment improvement suggestions. Alternatively, as patients recover (or relapse), they are transferred to other wards better able to meet their evolving needs and their place taken by new patients whose characteristics ‘match’ the remit of the ward better. A similar but less obvious process may occur to the staff. It could be that the ward climate is reinforced by this process. If patient characteristics have a relationship with ward climate, as the current findings suggest they do, then this suggests one explanation for the stability of ward climate despite patient turnover. Alternatively, the EssenCES may be insensitive to change within wards – and while Long, Langford, et al., (2011) were able, with the EssenCES, to demonstrate change following environmental transition, there have not been enough studies using the EssenCES to exclude this possibility.

**Differences between staff and patients**

In this study, patients rated the environment as safer, while staff rated the climate as more therapeutic. This partially replicates previous findings that staff consistently over-rate the therapeutic aspects of the environment relative to patients (Archer & Amuso, 1980; Friis, 1986a; Long, Anagnostakis, et al., 2011; Main, McBride, & Austin, 1991; Schjødt, Middelboe, Mortensen, & Gjerris, 2003). This could potentially be explained by the findings of Brunt and Rask (2007) who detected a perceived imbalance between staff and patients in forensic settings. Patients felt that they did not contribute to how therapeutic the environment felt, but they attributed high levels of control over climate to staff. This perceived lack of control might go some way to explaining the current finding that patients rated the ward as less therapeutic than staff did.

**Implications for practice**

Present findings indicate that diagnosis, gender, risk and session attendance are related to ward climate. The precise nature of these relationships and their mechanisms of action remain unclear. It is likely that there are patient influences on environment, and vice versa, and this is an interactive process
(Friedman, Paolino, Hinko, Graham, & Lilly, 1974; Partidge, 1995). There is some evidence that patients with different diagnoses might have different needs in terms of ward environment and its design, with psychotic patients requiring more structure, order and support (Friis, 1986b). The positive relationship between ES and levels of psychosis and personality disorders in the current sample could suggest that the sampled wards have adopted treatment philosophies that are more suited to individuals with these disorders, compared with other individuals such as those with learning disability or developmental disorders. However, the current sample contained relatively few patients with other primary diagnoses, making this difficult to test.

The current study has provided further evidence to suggest that patient characteristics do relate to ward climate ratings. This is valuable because previous studies, particularly in secure, forensic settings, are ambiguous. This study provides additional evidence on which future studies can build, for example by exploring prospectively the relevant characteristics to investigate determinants (rather than just correlates) of ward climate. In addition, an awareness of which patient characteristics are related to ward climate takes clinicians a step closer to being able to improve ward climate; as ward climate is linked to outcomes, this is clinically desirable. However, findings also suggested that, despite attempts to improve ward climate, its rating over time remained constant. This indicates that clinical attempts to monitor and improve ward climate should be creative but also evaluated regularly to build evidence base about what works. Further, the study reinforces the notion that staff view their ward climate as more therapeutic than do the patients. Staff might be out of touch with the patient’s reality of living on the ward. In line with the recovery approach, clinicians should aim to understand patients’ subjective experiences of living on the ward; and make more extensive use of patient experience to evaluate and improve ward climate. For example, some patients suggested during the informed consent procedure that monitoring of ward climate should not be confined to six-monthly EssenCES surveys, but could be supplemented with randomly selected patient interviews.

Clinicians should aim to foster a ward climate that is optimal for every individual patient. Because ward climate appears to be experienced differently by each patient, individual care planning may, in the future, should include a focus on ward climate. Improvements could be made by allowing those patients who want greater influence to become involved in treatment decisions, while allowing patients who would rather not, to be free to choose not to do so. Such approaches could improve patient satisfaction and are vital for leading a meaningful life in the context of recovery (Kerfoot et al., 2012). In a secure setting, of course, the obvious challenge will be to balance this with other mental health and risk management needs as well as the views of other stakeholders.

Present results suggested that aggressive incidents were not related to either patient-rated PC or ES. While this could be due to methodological problems, it
also suggests that despite many acute and forensic wards’ strong focus on preventing aggression (Kho et al., 1998), an incident-free environment is insufficient to guarantee a positive ward climate. Staff and financial resources need to be used to improve ward climate in different evidence-based ways, for example by improving the availability of trained staff and communication skills.

Study limitations

There were a number of important limitations to this study. Complex relationships between predictors and ward climate could not be explored in detail using the linear multiple regression analysis. Smaller effect sizes could not be captured using the current sample, so it is possible that some of the variables which failed to reach statistical significance would have been significant in a larger sample, though their clinical impact may only be modest. In common with previous studies, the cross-sectional design failed to capture causality. Moreover, the retrospective nature of the design meant that data were limited to those captured by routinely administered tools. As a result, a suboptimal tool was used to measure psychopathology. A wider and more rigorously captured core clinical data-set including a better measure of psychopathology, and a measure of subjective recovery, would aid future studies. Retrospective data did not accurately capture the purpose of patient’s leave such that we were unable to distinguish therapeutic and recreational leave. Since we did not have their consent, we could not ascertain whether non-participants were comparable with participants in terms of their aggression. Supplementation of quantitative measures with qualitative data from interviews or focus groups would strengthen future studies. The study as with all that rely on informed consent, potentially suffers from selection bias given that patients who were more unwell, or displayed more aggressive behaviour, might not be included in the sample – either because they lacked capacity or because they chose not to participate. It is possible that the patient group who make up the current sample are an unrepresentative subsample of ‘compliers’. It is possible that a similar bias affected the collection of ward climate ratings, and that the ‘non-compliers’ were less likely to share their views on the ward. However, this is less likely given that ward climate is a measure of a collective social phenomenon rather than one of individual characteristics. These potential biases would act as negative confounds, making it more difficult to detect a relationship between patient characteristics and ward climate. The heterogeneity of diagnoses and the extent of co-morbidity made it difficult to analyse the effect of diagnosis on ward climate. Some richness in the data was lost when the large range of ICD-10 diagnoses were coded. Most of the women had Borderline Personality Disorder, whereas men who had personality disorders tended to have diagnoses of Antisocial Personality Disorder. However, numbers were too small to separate these very different types of personality disorder, possibly obscuring some interesting effects. Finally, the current study was carried out in 13 open,
low- and medium-secure wards in a specialist forensic mental health service. The results may not generalise to other types of psychiatric in-patient unit or to high-secure forensic units, but could reasonably be generalised to other forensic settings, because of its controls for gender and level of security.

**Conclusion**

Despite the limitations outlined, this was the first study to address directly the relationship between patient characteristics and ward climate in a UK secure setting and was one of the largest UK studies on ward climate. We have highlighted the complexity of the relationship between climate and patient characteristics. The strengths of the study include an adequately sized and powered sample to determine moderate effect sizes. Future prospective studies are required to better understand the determinants of ward climate that increase the potential of interventions to improve it, and their effectiveness.

**Notes**

2. The assumption of equality of variances was not met for the patient-rated experienced safety scale: Levene’s test of homogeneity of variances (2,32) = 6.657, \( p = .004 \). Welch robust test of equality of means substituted.

**References**


