

# **Ward Climate within a High Secure Forensic Psychiatric Hospital: Perceptions of Patients and Nursing staff and the Role of Patient Characteristics.**

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## **Abstract**

*Within this study the relationship between patient characteristics (age, length of stay, risk, psychopathy) and individual perceived ward climate (n=83), and differences between staff's and patient perceptions of climate (n=185) was investigated within a high secure forensic hospital. Results show that therapeutic hold was rated higher among staff compared to patients, while patients held a more favorable view on patient cohesion and experienced safety. Furthermore, patient characteristics (age, risk and psychopathy) were found to be related with individual ratings of ward climate. The findings underline the importance of assessing ward climate among both patients and staff in clinical practice.*

**Keywords:** *ward climate; EssenCES; patient characteristics; forensic setting; nursing staff*

## **1. Introduction**

Ward climate is an important factor within the treatment of inpatients in secure settings and has been studied for almost 50 years. Ward climate can be seen as a multifactorial construct including the material, social, and emotional conditions of a given ward and the interaction between these factors (Moos, 1989; Tonkin, 2015). Ward climate is found to play a role in therapeutic outcomes like drop out-, release-, and re-admission rates (Moos, Shelton, & Petty, 1973), patient satisfaction (Bressington, Stewart, Beer, & MacInnes, 2011; Middelboe, Schjødt, Byrting, & Gjerris, 2001; Nettet, Rossberg, & Almvik, 2009; Rossberg & Friis, 2004), motivation for treatment (van der Helm, Beunk, Stams, & van der Laan, 2014), treatment engagement and therapeutic alliance (Long, Anagnostakis, Fox, Silaule, Somers, West, & Webster, 2011). Climate can be seen as an aspect of program responsivity that enhances treatment effects (Beech & Hamilton-Giachritsis, 2005; Howells & Day, 2003; Ward, Day, Howells, & Birgden, 2004). Ward climate has also found to be a determinant of staff wellbeing, playing a role in staff performance and morale (Moos & Schaefer, 1987), job satisfaction (Bressington et al., 2011; Middelboe et al., 2001; Rossberg & Friis, 2004), and occupational stress (Kirby & Pollock, 1995).

The relationship between ward climate and organizational- and therapeutic outcomes underlines the importance of establishing and maintaining an environment in which therapeutic progress is encouraged and that supports staff's ability to deliver responsible high quality care to their patients. However, creating an optimal climate within a high security forensic setting can be very challenging due to the complex patient population, involuntary admission within a closed setting and the balance between security needs and treatment goals (Burrows, 1991; Campling, Davies, & Farquharson, 2004; Howells, Krishnan, & Daffern, 2007). Moreover, patients and staff members working within forensic psychiatric settings seem to evaluate ward climate differently (Caplan, 1993; Day, Casey, Vess, & Huisy, 2011;

Dickens, Suesse, Snyman, & Picchioni, 2014; Howells et al., 2009; Livingston et al., 2012; Long et al., 2011; Moos, 1975; Rossberg & Friis, 2004; Schalast, Redies, Collins, Stacey, & Howell, 2008; Morrison, Burnard, & Phillips, 1997). For instance, Howells et al. (2009) found that patients in a high secure hospital service in the United Kingdom (UK) evaluated cohesion among patients more favorably than staff members. Another study found that patients in open, low and medium secure wards of a psychiatric hospital in the UK evaluated the ward climate as safer than staff members (Dickens et al., 2014). In both studies, staff members evaluated the therapeutic hold (how much the environment is supportive of therapy and therapeutic change) more favorably compared to patients. Caplan (1993) found that staff and patient perceptions differed with regard to several scales of the Ward Atmosphere Scale (WAS; Moos, 1968; 1989, Moos & Houts, 1974), including order and organization, program clarity and staff control. Possible explanations given in previous research for the divergent perceptions between nursing staff and patients are, the different roles and functions that staff and patients have within a forensic institution (Caplan, 1993; Goffman, 1961; Rossberg & Friis, 2004), and the restrictions to the liberty and personal freedom of incarcerated patients (Langdon, Cosgrave & Tranah, 2004). Patients' restricted liberty could also be a potential explanation for the finding that the perception of climate differs as a function of the level of security (Dickens et al., 2014; Long et al., 2011; Milsom et al., 2014).

It follows that gaining insight into patients' and staff's perception of ward climate is highly informative and promotes the discovery of potentially meaningful discrepancies between the groups. Friis (1986) has argued that the patient's perception of the ward milieu can be seen as a most important indicator of how the milieu affects the patient. When striving to keep patients in a responsive therapeutic environment which is designed to address their needs (in order to enhance treatment efficacy), it is important to have insight in how the climate is actually perceived by patients. Forensic nurses could use this information in their

daily work, actively discussing the different views on ward climate within their team and with their patient group. Together they could identify different needs, create opportunities for improvement of the treatment milieu and subsequently improve treatment success.

Importantly, however, ward climate perception is also dependent on other factors. Recent research by Dickens et al. (2014) revealed associations between patient characteristics and mean evaluation scores of ward climate. They found that female gender positively predicted patient cohesion and perceived safety measured with the Essen Climate Evaluation Scale (EssenCES; Schalast et al., 2008) among patients residing in open, low and medium secure forensic settings. Furthermore, higher perceived risk measured with the Historical, Clinical and Risk Management 20 (HCR-20; Webster, Douglas, Eaves, & Hart, 1997) was associated with lower perceived patient cohesion, a diagnosis of personality disorder or psychosis according to the ICD-10 (WHO, 2010) was related to higher experienced safety, and higher levels of engagement (i.e., the number of programmed therapeutic sessions attended over a two-week period) was associated with greater therapeutic hold.

While not accounting for all relationships presented above, the relationship between ward climate and various environmental, social and individual characteristics might reflect the interplay between patients' (security) needs and climate. Hence, individuals at high risk of showing violence or who are suffering from severe psychiatric problems might have higher security needs, leading them to be more exposed to physical, procedural and relational security, ultimately influencing their (perception of) ward climate. Norton (2004) describes how five functional properties of a ward (containment, support, structure, involvement and validation) can also reflect the patient's changing needs, and how the emphasis on these factors can change during a treatment process (and during crisis situations).

In contrast to Dickens et al. (2014) there is also research showing that patient characteristics have a small or no impact on ward climate (Moos, 1997; Pedersen & Karterud,

2007). Pedersen and Karterud (2007) found no substantial associations between patient characteristics (gender, age, level of education, self reported symptom distress, interpersonal problems, diagnosis) and individual ratings of treatment milieu. Data were collected from patients (71% women) suffering mainly from personality, mood and anxiety disorders who had been admitted to day-treatment units. Pedersen and Karterud (2007) argue that since differences between patients' views on ward climate cannot be attributed to patient characteristics they must be largely idiosyncratic. Alternative explanations for the discrepant findings with regard to the role of patient characteristics might be found in differences in methodology (using the EssenCES versus the WAS for assessing climate), and different clinical setting/samples used in the studies of Dickens and colleagues (2014) and Pedersen and Karterud (2007).

Contradictory findings highlight the importance of conducting more research in order to disentangle the possible relationships between patient characteristics and ward climate within secure forensic settings. Gaining more knowledge about these relationships could be beneficial for clinical practice by providing guidance for active management of ward climate. Hence, when striving to keep patients in a therapeutic environment designed to address their needs, taking into account individual patient characteristics is essential. In order to do so, more research is needed, demonstrating whether or not certain personal characteristics are related to the perception of ward climate. When relationships and underlying mechanisms are clearer, this knowledge could be used to guide assessment, evaluation, assignment to specific wards, composing patient groups and staff training.

Since there are very few studies of the relationship between ward climate and patient characteristics this study contributes to an under-explored but important area. The aim of this current study is to provide more insight into the relationship between patient characteristics and perceived ward climate. Based on previous findings, the demographic characteristics that

might be related to perception of ward climate targeted in the present study were patients' age (Campbell, Allan, & Sims, 2014; Middelboe et al., 2001; Pedersen & Karterud, 2007), length of stay within the facility (van der Helm et al., 2014), and risk of violence (Dickens et al., 2014). With respect to pathological personality features, there are reports that psychopathy may be a key determinant of climate in forensic therapeutic settings (Harkins, Beech, & Thornton, 2012). Psychopathy is a severe condition characterized by a combination of personality characteristics entailing disturbed interpersonal-affective functioning combined with high anti-sociality (Neumann, Hare, & Newman, 2007). Therefore, the impact of having psychopathic features on the perception of ward climate was also assessed. This study has an explorative nature, since the literature provides inconclusive findings and therefore precludes the formulation of clear hypotheses.

As very little research on ward climate has been conducted outside of the US and the UK, this study also aims to assess whether the differences between patients' and staff's perceptions of ward climate can be found in the high secure forensic setting in the Netherlands. Based on previous findings, we hypothesized that patients should report higher levels of experienced safety and patient cohesion compared to staff members and that staff members should report higher levels of therapeutic hold compared to patients.

To conclude, the aim of this current study is to provide more insight into the differences between patients' and staff's perceptions of ward climate, and into the relationship between patient characteristics and perceived ward climate.

## **2. Material and Methods**

### **2.1 Subjects**

Data were collected within a high secure forensic psychiatric institution in the Netherlands. In the Netherlands, offenders who have committed a serious crime, (partly) due

to a psychopathological condition (Diagnostic and Statistical Manual of Mental Disorders, version IV-TR axis-I and/or axis-II disorder; American Psychiatric Association, 2000), can be assigned to a measure to be treated on behalf of the state (Ter Beschikking Stelling; TBS). TBS is not a punishment, but an entrustment act for offenders with mental disorders, which aims to protect society against the risk of recidivism through incarceration and treatment.

Between 2007 and 2012 a total of 1399 measurements of the EssenCES were obtained (891 EssenCES scored by staff members and 508 by patients, including repeated measures). In order to include as many participants as possible within the analysis of this present study two sub-samples were extracted from this total dataset. One sample was used to compare staff members and patients' views on ward climate. Therefore, only wards where at least half of the staff members and half of the patients participated during the same measurement point, were selected. A response rate of at least 50% seemed sufficient to obtain a climate profile (Dickens et al., 2014). Schalast et al. (2008) argue that it is not necessary for all patients and staff to fill in the questionnaire to get a realistic or valid view. This method resulted in a sample of 72 patients and 113 staff members from 13 wards. In order to investigate the reliability of the scale within this Dutch forensic sample and in order to look at the role that individual patient characteristics play in the perception of ward climate, the first measurement from each participant (excluding repeated measures), was extracted from the total dataset to form a second sample. This resulted in a sample of 373 participants, 154 patients and 219 staff members. Demographic and clinical characteristics of the participating patients are shown in table 1. All participating patients were male and were diagnosed with one or more diagnoses on Axis I and/or Axis II defined according to the DSM IV/V (American Psychiatric Association, 2000).

## 2.2 Procedure

The data collection was part of routine evaluation of the ward climate within the institution. Staff members working on the wards and patients that resided on the wards were routinely (three times per year) asked to complete the EssenCES. The researcher gave oral and written information concerning the data collection, the study aims and objectives. Staff members completed the measures during work hours, patients were rewarded with € 2,35. The completed questionnaires were returned to the researcher, after which the scores were entered into SPSS version 20 (IBM, SPSS Statistics) for analyses.

Data on patient characteristics (age, length of stay, disorder, risk, and psychopathy) were extracted from the clinical records of the patients and added to the SPSS database. Collection of data about, e.g., mental disorders (DSM IV/V) and level of risk (HCR-20) is important and mandatory upon admission to the forensic mental health system. As the HCR-20 (and in some cases the PCL-R) are administered multiple times in order to monitor a patient's risk, the assessment that had taken place most closely to the assessment of climate was used in this study.

## 2.3 Measures

### 2.3.1 Climate

The Essen Climate Evaluation Schema (EssenCES; Schalast et al., 2008) is a 17-item questionnaire measuring three aspects of climate in forensic services (Therapeutic Hold (TH), Experienced Safety (ES), and Patients Cohesion and Mutual Support (PC)). The first and final items of the questionnaire are not scored, since they are meant to start and end the questionnaire with a positive note. Examples of items representing the different factors are '*The patients care for each other*' (PC), '*Really threatening situations can occur here*' (ES), '*On this ward, patients can openly talk to staff about all their problems*' (TH). The Dutch translation of the EssenCES was used (Bulten & Fluttert, 2007). Ratings were obtained using



a Visual Analogue response Scale (VAS) ranging from ‘not at all’ (0) up to ‘very much’ (100). The scores on items 3, 6, 8, 9, 12, 13, 15 were reversed prior to analyses, as a result high scores reflect a positive perceived ward climate. Several studies provide good empirical support for the psychometric properties of the EssenCES (Schalast et al., 2008; Howells et al., 2009; Tonkin et. al., 2012). Tonkin (2015) reported in a review ten studies on the internal consistency of the EssenCES, the mean Cronbach’s alpha’s ranged from: .82 (PC), .77 (ES), and .81 (TH).

### *2.3.2 Risk for violence.*

The HCR-20 (Webster et al., 1997) is a risk assessment tool broadly used by clinicians to assess risk of future violence. The HCR-20 reliably predicts future violence (Douglas & Webster, 1999). The HCR-20 consists of 20 items (rated on a three-point scale 0 = criteria is not present, 1 = possibly present and 2 = definitely present) divided into three subscales, Historical, Clinical, and Risk management that relate to risk factors in the past, present and future.

### *2.3.3 Psychopathy*

The Hare Psychopathy Checklist – Revised (PCL-R; Hare, 2003) is a clinical tool for assessing psychopathy. The 20 items are scored (as 0, 1 or 2) by two independent trained raters based on a semi-structured interview and case-history information. Sum scores can be obtained for four facets, reflecting interpersonal problems, affective problems, impulsive behavior lifestyle and antisocial behavior (Hare, 2003; Hare & Neumann, 2005).

## **2.4 Statistical Analyses**

Mean scores and standard deviations on the EssenCES subscales were calculated. Internal consistency was examined using Cronbachs alpha ( $\alpha$ ) and Corrected Item Total Correlation (CITC) coefficients. Internal consistency was examined for the sample as a whole, as well as for staff and patients separately.

A one-way multivariate analysis of variance (MANOVA) was conducted to see whether scores on the subscales of the EssenCES differed between respondent types (staff, patient). The subscores on PC and TH of two staff members and the sub score of one staff member on ES could not be taken into account due to missing items on the EssenCES.

To assess the relationship between patient characteristics and ward climate path analyses were conducted using Mplus v7.0 (Muthen & Muthen, 1998). Age, length of stay, the four facet scores of the PCL-R and the scores for the three scales of the HCR-20 were entered as predictors, while the scores on the three scales of the EssenCES served as mutually related dependent variables. Not all patients had a score on the PCL-R (PCL-R Interpersonal scale: 37 missing values; Affective scale: 46 missing values; Lifestyle scale: 48 missing values; Antisocial scale: 55 missing values). Also not all the HCR-20 scores were available (HCR-20 Historical scale 33 missing values; Clinical scale: 23 missing values; Risk scale: 24 missing values).

Eighty three patients had scores on all variables and were included in the analyses. A Bayesian estimator was used with 5 Markov chain Monte Carlo (MCMC) chains and 75000 iterations using the default Gibbs sampler (PX1) in Mplus. The Bayesian estimator has been found to outperform traditional maximum likelihood estimators (Muthén, 2010) and provides reliable results even in relatively small samples (e.g.,  $n=50$ ) (Scheines, Hoijtink, & Boomsma, 1999). As is common in Bayesian analyses, the first half of the MCMC iterations was discarded to reduce the effect of the initial values found by the chains (burn-in trials). Model fit was determined using three different fit indexes for Bayesian testing: i) Chi-Square tests to

conduct Posterior Predictive Checking (95% credibility interval; CI), ii) the Posterior Predictive P-value (PPP-value) and iii) convergence according to the Gelman-Rubin criterion based on the potential scale reduction (PSR) factor for each parameter (Gelman & Rubin, 1992; Gelman et al., 2004, pp. 296- 297). In general, the 95% CI for the Chi-square posterior predictive checking should include the value 0 (in contrast to non-Bayesian frameworks), the PPP-value should be close to the value 0.50 and convergence is achieved when the PSR is below 1.05 (Muthen & Muthen, 1998). Significance of the regression weights were determined based on the 95% CIs of the Bayesian posterior distribution. Regressor CIs not containing the value 0 were considered significant.

### 3. Results

From the patient group ( $n = 154$ ) demographic and clinical characteristics are displayed in table 1.

Table 1. Demographic and clinical characteristics of the patient sample<sup>1</sup>.

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Range</i>
Age (in years)	154	39.25	10.02	22 - 67
Length of stay (in months)	154	29.20	24.87	0 - 145
EssenCES* Patient cohesion	154	258.79	110.20	0 - 500
EssenCES Experienced Safety	154	266.10	113.79	0 - 494
EssenCES Therapeutic Hold	154	230.16	124.49	0 - 500
PCL-R Total score**	120	19.65	7.05	6 - 36
PCL-R Interpersonal scale	117	3.19	2.00	0 - 8
PCL-R Affective scale	108	5.24	2.21	0 - 8
PCL-R Lifestyle scale	106	5.15	2.44	0 - 10
PCL-R Antisocial scale	99	5.22	2.80	0 - 10
HCR Total score***	132	3.01	1.41	1 - 5

<sup>1</sup> Mean scores and standard deviations of the sub-sample used in the path analysis are comparable with the scores reported here. Descriptives are available from the first author on request.

HCR Historical scale	121	14.01	2.53	6 - 18
HCR Clinical scale	131	4.60	1.95	0 - 9
HCR Risk scale	130	4.81	2.40	0 – 10

\* the minimum and maximum scores that can be obtained for the subscales of the EssenCES using a Visual Analogue Response scale are: 0-500.

\*\* the minimum and maximum scores that can be obtained for the PCL-R are: Total: 0-40; Interpersonal and Affective scale: 0-8; Lifestyle and Antisocial scale: 0-10.

\*\*\* the minimum and maximum scores that can be obtained for the HCR-20 are: Total: 0-5; Historical scale: 0-20; Clinical scale: 0-10; Risk scale: 0-10.

### 3.1 Internal Consistency

The internal consistency of the EssenCES was assessed using Cronbach's alpha ( $\alpha$ ) and Corrected Item Total Correlation (CITC) coefficients. Within the total sample Cronbach's  $\alpha$  ranged from .73 to .84 (see table 2). CITC ranged from .45 to .74. According to Helmstadter (1964) a CITC above .50 is considered high and  $\alpha$  should exceed .70. Furthermore removal of an item would be wise in case of a CITC below .20.

Within the patient sample Cronbach's  $\alpha$  ranged from .76 to .84. CITC ranged from .37 to .74. Within the staff sample CITC ranged from .30 to .76 and Cronbach's  $\alpha$  ranged from .67 to .85. No CITC values below .20 were found and almost all Cronbach alpha values exceed .70, except for TH in the staff sample ( $\alpha = .67$ ). These findings indicate satisfactory internal consistency for the Dutch translation of the EssenCES. Since Cronbach alpha values are sensitive to the length of a scale, it is common to find lower  $\alpha$  values (around .5) for short scales like the EssenCES (Cortina, 1993).

Table 2. Internal consistency (Cronbach's  $\alpha$ ) of the EssenCES.

Scale	Patients (n=154)	Staff (n=219)	Total (n=373)
Patient Cohesion	.82	.85	.84
Experienced Safety	.76	.70	.73
Therapeutic Hold	.84	.67	.84

### 3.2 Patient perception versus staff perception of climate

A MANOVA was conducted to compare patients and staff in terms of their scores on the subscales of the EssenCES (see table 3). A statistically significant MANOVA effect was obtained, Pillais' Trace = .31,  $F(3, 178) = 27.16, p < .001$ . The univariate  $F$  tests showed there was a significant difference between staff and patients on all subscales of the EssenCES, PC:  $F = 8.07, df = (1, 180), p = .005$ ; ES:  $F = 21.23, df = (1, 180), p < .001$ ; and TH:  $F = 37.24, df = (1, 180), p < .001$ .

Table 3. Results of the MANOVA analysis.

Statistic	Patients <i>n</i> = 72	Staff <i>n</i> = 110	<i>F</i> (df)	<i>p</i>
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )		
Multivariate test			27.16 (3,178)	< 0.001
Univariate tests				
Patient cohesion	250.19 (111.98)	209.69 (80.24)	8.07 (1,180)	.005
Experienced safety	268.15 (101.11)	208.72 (72.81)	21.23 (1,180)	< 0.001
Therapeutic hold	241.51 (127.18)	327.23 (60.34)	37.24 (1,180)	< 0.001

### 3.3 Patient characteristics predicting perceived ward climate

The model as a result of the Bayesian path analysis is displayed in figure 1. Age, length of stay, the 4 facet scores of the PCL-R and the scores for the 3 scales of the HCR-20 were entered as predictors, while the scores on the 3 scales of the EssenCES served as mutually related dependent variables. The item of the HCR-20 measuring psychopathy was left out when computing the historical scale since psychopathy was assessed in this study with a fine grained psychopathy measure, the PCL-R.

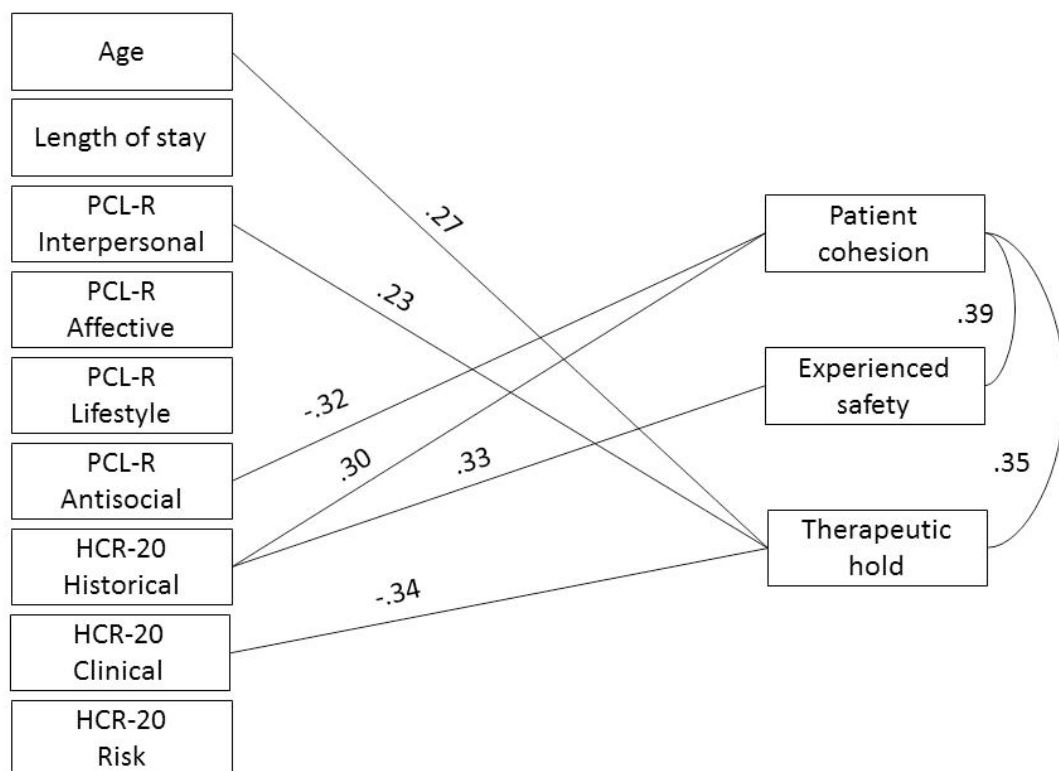
Regarding model fit, the 95% CI of the Chi-square check of the posterior predictive ranged from - 24.01 to 29.38, PPP-value was 0.43 and the PSR was below 1.05. Thus, all model fit indexes indicated good model fit. Results showed (see table 4) that patient cohesion was negatively predicted by the antisocial facet of the PCL-R ( $\beta = -.32$ ) and positively by the historical factor of the HCR-20 ( $\beta = .30$ ). Experienced safety was positively predicted by the

historical factor of the HCR-20 ( $\beta=.33$ ). Therapeutic hold was positively predicted by age ( $\beta=.27$ ), the interpersonal facet of the PCL-R ( $\beta=.23$ ), and negatively by the clinical factor of the HCR-20 ( $\beta=-.34$ ). PC was related to TH  $r=.35$ , and ES  $r=.39$ .

Table 4. Standardized results of the Bayesian path analysis.

Dependent variables	Predictor	Estimate ( $\beta$ )	95% C.I.	
			Lower 2.5% -	Upper 2.5 %
Patient Cohesion	Age	-0.005	-0.209	0.203
	Length of stay	-0.035	-0.234	0.166
	PCL-R Interpersonal	-0.039	-0.274	0.199
	PCL-R Affective	0.165	-0.086	0.396
	PCL-R Lifestyle	0.051	-0.206	0.308
	PCL-R Antisocial	-0.324	-0.611	-0.003 *
	HCR-20 Clinical	0.027	0.251	0.302
	HCR-20 Historical	0.301	0.001	0.575 *
	HCR-20 Risk	0.090	-0.180	0.348
Experienced Safety	Age	0.153	-0.053	0.342
	Length of stay	0.099	-0.100	0.288
	PCL-R Interpersonal	-0.016	-0.245	0.217
	PCL-R Affective	0.137	-0.106	0.368
	PCL-R Lifestyle	0.183	-0.074	0.425
	PCL-R Antisocial	-0.194	-0.485	0.118
	HCR-20 Clinical	-0.027	-0.295	0.245
	HCR-20 Historical	0.333	0.037	0.593 *
	HCR-20 Risk	-0.114	-0.363	0.151
Therapeutic Hold	Age	0.265	0.070	0.440 *
	Length of stay	0.027	-0.163	0.214
	PCL-R Interpersonal	0.229	0.001	0.438 *
	PCL-R Affective	-0.047	-0.276	0.183
	PCL-R Lifestyle	0.155	-0.094	0.389
	PCL-R Antisocial	-0.109	-0.396	0.193
	HCR-20 Clinical	-0.344	-0.581	-0.076 *
	HCR-20 Historical	0.131	-0.151	0.399
	HCR-20 Risk	0.037	-0.214	0.285
Patient cohesion	Experienced safety	0.393	0.172	0.577 *
Patient cohesion	Therapeutic hold	0.353	0.126	0.545 *
Experienced safety	Therapeutic hold	0.229	-0.007	0.443

Figure 1. Bayesian path analysis, only significant relationships are displayed, estimate ( $\beta$ ).



#### 4. Discussion

The aim of this present study was to provide insight into the relationship between patient characteristics and perceived ward climate, and to see whether the differences between patients' and staff's perceptions of ward climate previously found in the US and the UK can be found in a high secure forensic setting in the Netherlands.

The results show that staff and patients from high secure forensic wards differ in the way they evaluate climate. Therapeutic hold was rated higher among staff members compared to patients, which is consistent with previous research (Dickens et al., 2014; Howells et al., 2009; Long et al., 2011; Schalast et al., 2008). The consistency of this finding across different facilities, ranging from open to high security, indicates that this is quite a stable difference in perception between these two groups. With regard to the other two subscales of the EssenCES (PC and ES), patients held a more favorable view compared to nursing staff. These results are

in line with previous studies, reporting differences between staff's and patients' perceptions on ES (Dickens et al., 2014) and PC (Howells et al., 2009).

The finding that staff members and patients differ on all three subscales of the EssenCES supports the notion that the different roles and functions that staff and patients have within a forensic institution influence their perception of the ward climate. In line with that argumentation, a potential explanation for the difference on therapeutic hold is perceived lack of control of patients on the therapeutic environment (Brunt & Rask, 2007; Dickens et al., 2014). In their study, Brunt and Rask (2007) interpreted patients' negative statements about personal qualities of staff as an indication of experiences of repressiveness in a coercive system. Another possible mechanism explaining the difference found between patients and staff on ward climate could be an interpretation bias. Research on self-serving bias indicates that being observer or actor of a task influences the attributions made (Campbell & Sedikides, 1999). Since therapeutic hold targets mostly staff's work and patient cohesion and safety could be interpreted as more influenced by actions of the patient group, the differences are understandable. However, in order to disentangle the specific factors playing a role in the differences in perceptions between patient and staff further research is needed. In the future, it would be beneficial to administer a measure of socially desirable responding or a measure of attribution bias or locus of control alongside the EssenCES, which could then be controlled for in any subsequent analyses. Furthermore, qualitative research (in-depth interviews with patients and staff) might help to gain more insight into the underlying processes. However, these kinds of methods/measures assume that people are capable of introspection, and that they are motivated and willing to report their attitudes and beliefs accurately. Assuming that this is not always the case, another interesting direction might be found in more implicit measures. Future research could focus on implicit associations or automatic responses staff members might have towards specific patients or their attitude towards several treatment



orientations. There are some indications that implicit attitudes are related to nursing behavior. Hence, medical visit communication between nurses and patients and patients' perceptions of care seem to be associated with both implicit attitudes about race and stereotyping (Cooper et al., 2012). Furthermore, implicit prejudice is found to mediate the relationship between experiences of job stress and intention to change jobs among drug and alcohol nurses (Von Hippel, Brener, & von Hippel, 2008).

With regard to the relationship between patient characteristics and ward climate, the results of this current study show that high scores on the patient cohesion subscale are negatively associated with the antisocial facet of the PCL-R, and positively with the historical factor of the HCR-20. Contrary to this finding, Dickens et al. (2014) found a negative predictive value of the HCR-20 total-score on the level of cohesion on a ward. The explanations given by Dickens and colleagues are that individuals with a higher level of risk of future violence influence cohesion among patients negatively or that the risk of violence might be lowered by more cohesion on a ward. It is important to note that the operationalization of the outcome measures used in the present study and the study of Dickens and colleagues differs. While Dickens focused on how patient characteristics are represented on a ward and how this relates to ward climate as a group score (mean of all patients' scores), this current study used individual scores on patient characteristics as predictors and individual perceived ward climate as an outcome measure. Also, there are several other differences between the study of Dickens and colleagues and our study that could possibly account for the different findings. For example, 62 % of the data collected by Dickens et al. (2014) came from low security wards while the data of this study were collected within a high secure forensic setting. Risk was also operationalized differently, while Dickens and colleagues used the total score of the HCR-20, this current study uses the three subscales of the HCR-20,

historical, clinical, and risk management in order to get more detailed insight into the relationships between risk and climate.

The results show that differentiating between the three risk scales of the HCR-20 is useful in the prediction of climate. Hence, in predicting individual perceived climate the historical scale of the HCR-20 is found to positively predict patient cohesion and experienced safety. A potential underlying mechanism explaining the relationship between the historical risk factor and patient cohesion might be that the current environment (within the clinic) might be significantly better compared to patients' past environment with regard to the amount of support and safety. It might be that patients scoring high on the historical risk factors have experienced low levels of support during their life and evaluate even a little amount of support more positively than patients who are used to living in a supportive environment. With regard to safety, patients scoring high on the historical risk factors might be less susceptible to feeling a lack of safety due to their history of violence and/or personality disorder. It could also be the case that they are the more aggressive/intimidating patients on a ward, which causes other patients to feel unsafe.

A potential underlying mechanism of the negative predictive value of the antisocial facet of the PCL-R in patient cohesion might be that these antisocial patients find it difficult to interact with other patients. With regard to the relationship between psychopathy and social functioning and adaptation in a normal population, Baird (2002) demonstrated that primary psychopathy (egocentricity, manipulativeness, deceitfulness, and having a lack of remorse) is not detrimental but also does not benefit social functioning. Moreover, it was found that secondary psychopathy (antisocial behaviors and an unstable, self-defeating lifestyle) was related to a lack of success in social functioning. Furthermore, patients scoring high on the antisocial facet of the PCL-R might have difficulties adhering to clinic/ward rules, leading them to be either frequently secluded or socially isolated from the group. In research among juvenile

psychiatric inpatients, psychopathy has been associated with poorer institutional adjustment in the form of increased number of intensive supervision placement as a result of fighting, refusing to attend school or other mandatory activities, hurting oneself or others (Taylor, Kemper, & Kistner, 2007). A link between psychopathy and removal for serious non-compliance and rule violation has also been found in incarcerated female offenders in a substance abuse treatment program (Richards, Casey, & Lucente, 2003).

Therapeutic hold was predicted by three of the nine included patient characteristics. This result differs from results found in previous research where age was not found to be related to the perception of ward climate (Campbell et al., 2014; Middelboe et al., 2001; Pedersen and Karterud, 2007). In our study there was a positive relationship between age and therapeutic hold. A potential underlying mechanism might be that with increasing age patients become wiser, and calmer. Patients might get more notion of, and respect for the intentions of staff members for their recovery. There is research demonstrating that age is an important factor in the early formation of a therapeutic relationship. For example, Rosen, Miller, Nakash, Halpern and Alegría, (2012) found that matching out-patients from mental health and substance abuse services and therapists on age positively affected the intake process.

The interpersonal facet of the PCL-R was positively- and the clinical factor of the HCR-20 was negatively related to the perception of therapeutic hold. One interpretation is that individuals scoring high on the interpersonal factor of the PCL-R might have more positive contact with staff members due to their charm and manipulative behavior. In line with this, a study in a non-forensic sample found that individuals with relatively high scores on interpersonal and affective aspects of psychopathy did not show impairments in social adaptation (Baird, 2002). On the other hand it could also be that their grandiose sense of self worth influences their perception of the therapeutic holding by staff. Patients scoring high on the clinical factor of the HCR-20 (having more problems) tend to evaluate the climate as less

therapeutic. It could be that their negative attitude and lack of insight resonates in their evaluation of the therapeutic holding on a ward. In order to see whether the relationship between the interpersonal factor of the PCL-R, the clinical risk factor of the HCR-20 and therapeutic hold is a result of the environment that differs as a function of patient needs, or whether the explanation lies more within the perception of the patient, it would be desirable to incorporate measures giving more insight into patients' (security) needs and the therapeutic contact between staff and patients (for instance the frequency, perceived quality, and duration of the time spent with each other) in the future.

The present study demonstrates that there are patient characteristics associated with individual ratings of ward climate. However, the precise mechanisms underlying the relationships between patient characteristics and individual perceived ward climate requires further examination. As mentioned before, the relationship between patient characteristics and the perception of ward climate might reflect the interplay between patients' (security) needs and the environment / climate. As climate needs to be adaptive and responsive to patients' needs it would be interesting to conduct longitudinal research to assess the perception of ward climate at regular intervals during several years, to see whether the perception of climate changes as a function of changes in (security) needs of patients.

The findings of this study add and underline the importance of assessing ward climate among both patients and staff in clinical practice. Since ward climate is perceived differently between these two groups, the perception of the staff cannot be regarded as a valid indicator of how the climate is perceived by patients. Detailed feedback differentiating between patients' scores and staff scores could provide insight into potential discrepancies between groups. When discrepancies between staff and patients views are clear on a ward, interventions (for example active discussion between staff and patients or staff training) can take place aimed at fine-tuning climate on a ward. Given that staff and patients differ in their

perceptions of the ward climate, suggest that interventions designed to improve the perceived climate on a ward should target different aspects when delivered to staff compared to when they are delivered to patients. Service managers could choose or design interventions to improve perceptions of climate in both staff and patients.

Research has shown that active participation of staff (and patients) is a key factor in the process of improving perceptions of ward climate (James, Milne, & Firth, 1990; Moos, 1973). Nasset, Rossberg, and Almvik (2009) indicate for instance that a three-week staff training program concerning important aspects of treatment milieu (with a particular focus on the relationship between patients and nursing staff and staff members' behavior and their attitudes towards the patients), can improve ward climate as perceived by patients within a forensic psychiatric ward. After the intervention, patients reported an increase in a number of WAS scales, including involvement, support, practical orientation (how much patients learn practical skills and are prepared for release from a program), order and organization (the importance of order and organization in a program), as well as a lower level of anger and aggressive behavior. Another potential important aspect for management of ward climate, described by Norton (2004), is that patients know what they can expect from the environment (nurses) and what is expected from them. Norton argues that the overall therapeutic objectives of a ward need to be clear. These objectives can for instance be documented for staff and patients, accompanied with methods used on a ward to achieve them. Although additional research into the relationships between patient characteristics and individual perceived climate is needed, this knowledge could potentially be beneficial for active management of ward climate. Knowledge on the relationship between patient characteristics and the perception of climate on a ward could for instance assist service managers in the composition of patient groups. Furthermore, insights could be implemented in staff's training programs, informing them what they can expect from patients with regard to their perception of climate

(for instance, which patients might be susceptible for feelings of unsafety or for perceiving lower levels of therapeutic hold).

There were various limitations to this study that should be noted. Firstly, the sample was drawn from a single high secure forensic hospital in the Netherlands, limiting generalizability of the results. Replication of these results is needed in other high secure forensic hospitals. A second limitation would be missing data as a result of the participation of patients on voluntary base. It could be that individuals that did not participate in the assessment have other views on climate than individuals that did participate. Nevertheless, in order to gain a valid and realistic assessment, we aimed at intrinsically motivated, spontaneous participation. Therefore, in line with recommendations of the authors of the EssenCES, assessment took place by inviting instead of urging staff members and patients to fill in the questionnaire. Also, not all information from clinical files was available for the researchers for several reasons. For instance, some participants were administered to and discharged from the clinic before routine assessment of risk became obligatory, some clinical files were not (yet) up to date and sometimes missing items on a scale resulted in missing scores on subscales. The possibility that individuals with missing data (that were thus excluded from the path analysis) would change the results when included can therefore not be ruled out. Third, our study only entails a couple of patient characteristics that could be related to the perception of ward climate. Other characteristics that would be worth adding in future research are for instance, type of offence, treatment engagement, and amount of leave taking.

Despite the limitations of this study, the findings further our knowledge about an under explored topic, namely the relationship between patients' characteristics on individual perceived climate, using sophisticated statistical techniques. Also, this study extends earlier research conducted mostly in the US and the UK to the high secure forensic setting in the Netherlands. This study is the first to demonstrate differences between staff members and

patients on all three factors of climate measured with the EssenCES within a high secure forensic setting. Nursing staff and management within the forensic setting could use the knowledge derived from this study in their challenging task of setting and maintaining a ward climate supportive of treatment success for the whole group and well as for the individual patient.

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