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Highlights

- Patients' level of affiliation, as perceived by staff members, is positively associated with patients' age and negatively with recent problems with treatment response.
- Patients' level of control, as perceived by staff members, is positively associated with patients' engagement in disruptive behaviour within the facility and negatively with symptoms of psychiatric illness.
- The level of patients' affiliation, as perceived by staff members, is positively associated with patients' reported satisfaction with daily staff.

Staff's Perception of Patients' Affiliation and Control in a High Secure Forensic Psychiatric Setting.

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Abstract

Effective interactions between patients and staff have been associated with positive ward climate and therapeutic effects, but also pose a challenge in high secure forensic psychiatric settings. The goal of this study was to gain more insight into i) the characteristics that play a role in how staff members perceive the interpersonal style of patients, and ii) whether these perceptions are related to patients' evaluation of ward climate and satisfaction with daily staff. Staff members (n=69), rated the interpersonal style of 102 male patients. Satisfaction with daily staff and ward climate were rated by 45 patients. Results show that patient characteristics (primary diagnosis, patient age, disruptive behavior, recent problems with symptoms of major mental disorder and recent problems with treatment or supervision response) were related to how staff perceived the interpersonal style (i.e., affiliation and control) of patients. Furthermore, the level of affiliation was positively related to patients' satisfaction with daily staff. Patients that were seen as more controlling by staff were less satisfied with the safety on their ward (as a factor of ward climate). The results indicate that perception of patients' interpersonal style entails patient related information and can be relevant for staff to use in their work.

Keywords: Interpersonal style, forensic psychiatric patients, staff members.

1. Introduction

Staff members in high secure forensic psychiatric care work in a complex social context with patients with severe mental and behavioral problems, who have committed serious offences. An important aspect of the work of staff on a closed unit is to care for patients, support them and stimulate pro-social behavior through daily interaction. However, patient-staff interactions can be challenging and require skills that need to develop through education and experience (Rask et al., 2018). Personality disordered patients and aggression and violence have been identified as clinical problems that give forensic psychiatric nursing staff the most difficulties in their work (Mason et al., 2008). One challenging aspect of dealing with personality disordered patients involves managing deviant, pervasive, and inflexible interpersonal behavioral styles (American Psychiatric Association, 2013). The Interpersonal theory (Leary, 1957) postulates that individuals develop relatively consistent styles of self-presentation that are maintained by the particular reactions they elicit from others. An extreme style (as seen in personality disordered individuals) is maladaptive, as it is characterized by reliance on a narrow range of interactions (Blackburn, 1998; Kiesler, 1986; Leary, 1957). Blackburn (1998) examined the association between personality disorders and (observer ratings of) interpersonal style in male forensic psychiatric patients. In general, patients with narcissistic and antisocial personality disorders tended to exhibit a hostile-dominant interpersonal style, those with schizoid and avoidant personality disorders had a hostile-withdrawn interpersonal style, and individuals with dependent personality disorder had a submissive-nurturing style.

It has been suggested that therapists can make diagnostic and therapeutic use of the internal responses that personality disordered patients elicit in them, as these responses contain information about the (interpersonal style of) patients (Betan, et al., 2005; Colli and

Ferri, 2015; Colli et al., 2014; Rossberg et al., 2007). Daffern et al. (2010) argue that interpersonal style should be taken into account, for instance, in risk management of potentially aggressive patients. They found that in a high secure psychiatric setting, patients who were perceived as being both hostile and dominant were more aggressive during treatment compared to patients with other interpersonal styles.

Several inventories have been developed to gain insight in patients' interpersonal styles. One of these scales, the Impact Message Inventory-Circumplex (IMI-C; Kiesler and Schmidt, 2006) differs from other scales in that it combines features of self-report scales with observational-behavioral assessment scales. The IMI-C measures the interpersonal style of a target individual, by asking a respondent how he/she experienced interacting with this individual (how interacting with the target individual made the respondent feel, think, and behave). These reactions are used to score two dimensions: *affiliation* (friendliness-hostility) and *control* (dominance-submission) of the target individual. These dimensions are found to be the most reliable- and most useful dimensions for capturing interpersonal interactions in clinical practice (Hafkenscheid and Rouckhout, 2009).

As most research on interpersonal style is aimed at patients with personality disorders, little is known about how staff members working on forensic psychiatric units perceive the interpersonal style of other patient groups. This is problematic because a big proportion of patients within secure forensic setting are diagnosed with schizophrenia, psychotic disorders or paedophilia (Neijmeijer et al., 2012). Moreover, in a study exploring how forensic nurses develop, maintain and express respect for patients, Rose et al. (2011) found that empathy, trust and fear are described by nurses as facilitating the enactment of respect. Empathy was described by most nurses as putting yourself in the shoes of the other, emotionally or cognitive and was found to be more likely demonstrated towards patients with an Axis I

disorder (e.g., schizophrenia) compared to patients with an Axis II disorder (e.g., antisocial personality disorder).

Lingiardi et al. (2015) found that emotional responses (thoughts, feelings, and behaviours), expressed by therapists treating patients who are characterized by high levels of symptom severity, were similar between therapists, regardless of therapist characteristics such as therapeutic approach, gender, age, profession and level of experience. These findings suggest that these characteristics do not affect what therapists experience in treatment with these patients.

However, there are also studies demonstrating that there are individual differences in staff members with regard to their emotional responses to patients. De Vogel and Louppen (2016) found that characteristics of staff (both gender and level of experience) play a role in the feelings staff members reported to have towards their most challenging patients. Moreover, studies testing the inter-rater reliability of scales measuring interpersonal style (IMI-C) suggested that characteristics of the rater played a role in the perception of interpersonal styles, as generalizability of perceived interpersonal style seemed to differ between raters (Hafkenschied, 2003, 2005; Hafkenschied and Rouckhout, 2009).

Interpersonal style and emotional responses of staff members towards their patients are important to study, as they may have an impact on therapeutic relationships and treatment (Sophia, 2000). Lingiardi et al. (2015) argued that emotional reactions within therapists, such as feeling overwhelmed, disorganized, helpless and frustrated, could lead to problems in managing the therapeutic relationship. According to the Safe Wards Model, the staff's relationships with patients is a key factor for enhancing ward climate, reduction of conflict and promotion of prosocial behavior (Bowers et al., 2015). In line, Ros et al. (2013) found that patients who felt less supported by staff members were involved in more incidents of

aggression than patients who felt supported by staff. It is important to note that the studies referred to above concern bi-directional relationships, as it remains difficult (practically and ethically) to test these kind of associations in a controlled and experimental manner.

Nevertheless, it is important to gain more knowledge concerning the underlying mechanisms playing a role in staff-patient interactions in a forensic setting.

The goal of this study was to gain more insight into i) the characteristics that play a role in how staff members perceive the interpersonal style of patients, and ii) whether these perceptions are related to patients' evaluations of ward climate and their satisfaction with daily staff. Based on prior studies, a variety of staff characteristics (age, gender, years of experience), and patient characteristics (age, length of stay, disruptive behavior within the facility, clinical risk) were examined in relation to interpersonal style in this study. Based on previous research, it was expected that patients diagnosed with antisocial personality disorder were characterized by staff members as having a more dominant and hostile interpersonal style compared to patients with paedophilia and patients with psychotic disorders. A positive association was expected between disruptive behaviour within the facility and a controlling interpersonal style. Also, it was expected that how staff members perceive patients' affiliation was positively related to patients' satisfaction with daily staff and with patients' evaluation of therapeutic holding (as an aspect of ward climate).

2. Methods

2.1 Participants

Data were collected at the Pompestichting, a high secure forensic psychiatric institution for male patients in the Netherlands. Staff members working on the units in the day to day care of patients were asked to participate. In the Netherlands these staff members are referred to as 'sociotherapists' (sociotherapeuten). In general the educational background of sociotherapists is higher education (e.g. Social Work, Nursing). Of the 218 staff members working on the units, 203 were asked to participate (15 staff members could not be reached due to illness and/or leave). The response rate was 39%, data from 10 staff members could not be used due to missing values. One patient was left out of the analyses as she was the only female in the sample. Ultimately, staff (n=69), generated 130 ratings concerning 102 unique patients. As each staff member is a case manager for 1–4 patient(s), they were asked to fill out the Impact Message Inventory-Circumplex short (IMI-CS; Sodano et al., 2014) for the patient(s) they manage. Diagnoses were provided by means of psychiatric forensic evaluation, using a semi-structured diagnostic interview. All patients were diagnosed by a psychiatrist as necessary condition for treatment within the Pompestichting, using the Diagnostic and Statistical Manual of Mental Disorders, version IV-TR (American Psychiatric Association, 2000). See Table 1 for descriptive statistics. A subgroup (n=45) of the 102 patients scored by staff members on the IMI-CS filled out the Essen Climate Evaluation Schema (EssenCES; Schalast et al., 2008) and the subscale Daily Staff (DS), part of the Forensic in-patient Quality of Life questionnaire (FQL; Vorstenbosch et al., 2007).

2.2 Measures

2.2.1 Interpersonal style

The IMI-CS (Sodano et al., 2014) based on the Impact Message Inventory-Circumplex (IMI-C; Schmidt et al., 1999) is a 32-item self-report inventory that assesses the covert emotional experience or reactions of the respondent (i.e., a staff member) based on the interactions between the respondent with the person being evaluated (i.e., a patient). The IMI-CS aims to reflect the interpersonal style of the target individual by tapping into the reactions of the respondent. Examples of items of this instrument are: ‘When I am with him... he makes me feel bossed around’; ‘... distant from him’; ‘... that I should tell him to stand up for himself’. Items are rated on a 4-point likert scale ranging from ‘not at all’, to ‘very much so’. In the current study, scores on the two axis of the interpersonal circle were used, reflecting level of control (dominance-submission) and affiliation (friendliness-hostility). The scores from the eight subscales of the IMI-CS: Dominant (D); Friendly-Dominant (FD); Friendly (F); Friendly-Submissive (FS); Submissive (S); Hostile-Submissive (HS); Hostile (H); Hostile-Dominant (HD), are used to calculate the two axis scores using a mathematical formula as described in the IMI guidelines ($CONTROL = D - S + 0.707 (HD + FD) - .707 (HS + FS)$, $AFFILIATION = F - H + 0.707 (FD + FS) - 0.707 (HD + HS)$) (Kiesler and Schmidt, 2006). Overall satisfactory internal consistency was found within this sample ($N=130$) with a mean alpha of 0.63. Since Cronbach's alpha values are sensitive to the length of a scale, it is common to find lower α values (around 0.50) for short scales (Cortina, 1993). Seven out of eight scales had an alpha ≥ 0.50 (range 0.50 till 0.75). One subscale (S) had an α value below 0.50, namely 0.37. If one of the four items of the S scale was deleted (item 6: *when I am with him he makes me feel in charge*) α value of that subscale would increase to 0.65.

2.2.2 Ward Climate

The EssenCES (Schalast et al., 2008) is a 17-item questionnaire. Ratings were obtained using a 5-point likert scale ranging from 'I do not agree' up to 'totally agree'. Examples of items representing the different factors are '*The patients care for each other*' (Patient Cohesion); '*Really threatening situations can occur here*' (Experienced Safety); '*On this ward, patients can openly talk to staff about all their problems*' (Therapeutic Hold). Within this sample the Cronbach's alpha values of the three subscales of the EssenCES were good, Patient Cohesion $\alpha=0.73$, Experienced Safety $\alpha=0.83$, Therapeutic Hold $\alpha=0.83$.

2.2.3 Disruptive behavior

As mandated by organizational policies, the occurrence of disruptive behavior among patients (including rule violation, acting out and threatening behavior) is registered by staff members using an internal registration system. In order to decide whether or not particular patient behavior is deemed as disruptive and to determine whether registration is needed, staff members rely on their personal experience and professionalism, and consult their colleagues within the team during handover. Subsequently, registrations made by staff members are checked and need to be approved by team leaders. Disruptive behaviors that took place within six months before the assessment with the IMI-CS were included (see Table 1 for descriptive statistics). For each patient the total amount of incidents of disruptive behavior within that period, was computed. The time period was chosen as incidents in general do not happen on a daily basis, but a time frame of six months is sufficient for incidents to occur. Also taking a longer period would have had consequences for the sample size as some patients were relocated after six months.

2.2.4 Daily Staff

The subscale DS, part of the FQL (Vorstenbosch et al., 2007), was used to assess patients' perception of the quality of interaction with daily staff. The DS subscale consists of 16 items. Ratings were obtained using a 5-point likert scale ranging from 'total disagreement' up to 'total agreement'. Examples of items representing this concept are '*Are you appreciated by the ward staff?*', '*Are you treated with respect by the daily staff?*', '*Do you feel you can turn to the daily staff with your problems?*'. Within this sample the Cronbach's alpha of the DS subscale was 0.90.

2.2.5 Clinical Risk

The Historical Clinical Risk Management-20 V3 (HCR-20 V3; Douglas et al., 2013) is a risk assessment tool broadly used by clinicians to assess risk of future violence. In this study, the Clinical (C) scale of the HCR-20 V3 was used as an indicator of patients' current risk within the facility. The C-scale consists of 5 items: *recent problems with insight* (sub-items: mental disorder; violence risk; need for treatment), *recent problems with violent ideation or intent*, *recent problems with symptoms of major mental disorder* (sub-items: psychotic disorders, major mood disorders, other mental disorders), *recent problems with instability* (sub-items: affective, behavioral, cognitive instability) and *recent problems with treatment or supervision response* (sub-items: compliance, responsiveness).

2.3 Procedure

Data collection was part of the yearly evaluation of ward climate (among patients and staff) within the Pompestichting and took place in 2016. The study was approved by internal review board (Scientific Committee) of the Pompestichting and was conducted in accordance with the Declaration of Helsinki (World Medical Association, 2013). The researcher gave oral and

written information concerning the data collection, the study aims and objectives. Participation was voluntary, staff members were asked to fill out an online questionnaire, including questions concerning age, work experience, gender, followed by the IMI-CS.

Patients received a printed questionnaire (EssenCES and the Daily Staff) with a return envelope. After filling out the questionnaires, patients returned them to the researcher by posting the envelope in a sealed box located on the ward. Patients signed an informed consent before taking part and were rewarded with €2.35 (payment equal to one working hour within the Pompestichting). Data on patient characteristics (age, disorder, length of stay within the institution, clinical risk) were extracted from the clinical records. Before analyzing, assessments were anonymized to ensure that participants could not be identified based on the data.

2.4 Statistical analyses

Statistical analyses were conducted using SPSS version 25 (IBM, SPSS Statistics), JASP (JASP Team, 2018) and Mplus v.7 (Muthén and Muthén, 1998-2011). Missing data on the IMI-CS (which was less than 2% of the dataset) were imputed using the Expectation Maximization method (Dempster et al., 1977), after concluding that data were missing completely at random (chi-square=1178.03 (df=1152; $p=0.29$)) using the Missing Completely at Random test (Little and Rubin, 2002). Missing data were imputed per subscale.

Bayesian methods were used as it is a flexible method, relying on probability theory, capable of dealing with statistical challenges such as violation of the assumption of normality (Etz and Vandekerckhove, 2018). Firstly, Bayesian One-way ANOVA was used to test differences between diagnostic groups with regard to the main dimensions of the IMI-CS. As can be seen in Table 1, the sample included patients with a variety of (main) diagnoses.

Patients residing within the Pompestichting often show co-morbidity, but patients' primary diagnosis is commonly used to determine the main psychiatric condition. The primary diagnosis was also used within this study to form groups of patients, which allowed us to explore whether the groups differed on the main dimensions of the IMI-CS. All diagnoses were extracted from patients' clinical records. For patients without a clear primary diagnosis, a small team (including a psychiatrist, a psychologist and a researcher) judged each patient's clinical record. This procedure resulted in three groups, which clearly differed in the diagnosis, that could be used within the analysis and a group of patients that were left out of the group comparison because of the heterogeneity. Group 1 ($n=41$), included patients with diagnose of schizophrenia, psychotic- or schizoaffective- disorder, and 17 of these patients were also diagnosed with a personality disorder other than their primary diagnosis; group 2 ($n=20$), included patients with an antisocial personality disorder (exclusion criterion for this group was a diagnosis of schizophrenia, psychotic- or schizoaffective- disorder); group 3 ($n=16$), included patients with paedophilia, and 4 of these patients were also diagnosed with an antisocial personality disorder. Twenty-five patients were not included in the analysis as they had other primary diagnoses, such as a personality disorder NOS ($n=11$) or autism ($n=8$) (see Table 1). The strength of evidence supporting the presence of differences between groups (H_1) was based on the estimate of the Bayes factor (BF; a natural ratio to compare the marginal likelihoods between a null and an alternative hypothesis, for commonly used thresholds to define significance of evidence, see Wetzels and Wagenmakers (2012)). A $BF > 1$ indicates that the data supports H_1 over H_0 , while $BF < 1$ reflects more support for H_0 relative to H_1 .

A Bayesian path analysis was conducted to assess the association between patient and staff characteristics, and staffs' perception of patients' interpersonal style. Characteristics of

staff members (age, gender, years of experience) and patients characteristics (age, length of stay, disruptive behavior within the facility, and the 5 facets of the clinical factor of the HCR-V3), were entered as predictors, while the scores on main dimensions of the IMI-CS (control and affiliation) served as dependent variables. A Bayesian estimator (default Gibbs sampler (PX1)) was used with 2 Markov chain Monte Carlo (MCMC) chains and 100000 iterations in Mplus. The Bayesian estimator has been found to provide reliable results even in relatively small samples (e.g., $n=50$) (Scheines et al., 1999). Three different fit indexes for Bayesian testing were used to determine model fit (chi-square tests to conduct posterior predictive checking (95% credibility interval; CI); the posterior predictive P-value (PPP-value); and convergence according to the Gelman-Rubin criterion based on the potential scale reduction (PSR) factor for each parameter (Gelman and Rubin, 1992; Gelman et al., 2004, pp. 296–297). In contrast to non-Bayesian frameworks, the 95% CI for the chi-square posterior predictive check *should* include the value 0, convergence is reached with a PSR below 1.05 and the PPP-value should be close to the value 0.50 (Muthén and Muthén, 1998-2011). Significance of the individual predictors was determined based on the corresponding 95% CI (which should *not* contain 0; see also Brazil et al., 2017).

Bayesian correlations were used to study the association between how staff members perceive the interpersonal style of their patients, how patients perceive ward climate, and patients' satisfaction with daily staff. Significance was based on the 95% CI of each variable pair being correlated. For each pair of variables, the mode (i.e., most frequent value) of the posterior distribution was used as point estimates for the correlation. A correlation was considered significant if the 95% CI did *not* contain the value 0.

3. Results

3.1 One-way ANOVA

There was substantial evidence for H0 (H0: no differences between the diagnostic groups) with regard to the affiliation dimension of the IMI-CS ($BF_{10}=0.12$)¹. See Table 2 for statistics. There was substantial evidence for H1 (differences between the diagnostic groups) with regard to the control dimension ($BF_{10}=5.87$). Post Hoc comparisons indicated strong evidence for differences between group 1 and 2 on the control dimension ($BF_{10}=20.07$). There was anecdotal² evidence that group 1 and 3 did not differ on the control dimension ($BF_{10}=0.32$), and there was anecdotal evidence for differences between group 2 and 3 on the control dimension ($BF_{10}=1.36$).³

3.2 Path analysis

In the path analysis (see Figure 1), the 95% CI of the chi-square check of the posterior predictive ranged from -21.18 to 23.31 , PPP-value was 0.47 and the PSR was below 1.05 . Thus, all model fit indexes indicated very good fit. The results showed that affiliation was positively predicted by patients' age ($\beta=0.25$) and negatively by recent problems with treatment response ($\beta=-0.39$) (see Table 3 for complete results). Control was positively

¹ ANOVA using traditional frequentist approach yielded similar results, indicating no group differences ($F(2, 95)=0.23, p=0.79$).

² Bayes factor between 1 and 3 and between 1/3 and 1 is interpreted as anecdotal evidence, also known as: 'worth no more than a bare mention' (Jeffreys, 1961; Wetzels and Wagenmakers, 2012).

³ An alternative analysis (ANOVA) using traditional frequentist approach yielded similar results, suggesting the presence of group differences on the control dimension ($F(2, 95)=5.10, p=0.01$). Post Hoc comparisons using Tukey HSD test indicated that the mean score on the control dimension from group 1 patients ($M=-0.22, SD=1.28$) was significantly different ($p=0.01$) from group 2 patients ($M=0.73, SD=1.16$). The mean score on the control dimension from group 1 patients ($M=-0.22, SD=1.28$) was not significantly different ($p=0.76$) from group 3 patients ($M=0.00, SD=1.41$). The mean score on the control dimension of group 2 patients ($M=0.73, SD=1.16$) was not significantly ($p=0.13$) different from group 3 patients ($M=0.00, SD=1.41$).

predicted by disruptive behaviour ($\beta=0.22$), and negatively by recent problems with symptoms of psychiatric illness ($\beta=-0.39$). Control was negatively related to affiliation $r=-0.40$.

3.3 Correlation analyses

Scores on the control dimension were not correlated with patients' evaluation of therapeutic hold ($r=-0.22$, 95% CI -0.47 to 0.07)⁴. Affiliation and therapeutic hold were also not correlated ($r=0.04$, 95% CI -0.25 to 0.32)⁵. Scores on the control dimension were related with another factor of ward climate namely experienced safety ($r=-0.38$, 95% CI -0.60 to -0.10)⁶. There was also an association between affiliation and satisfaction with daily staff ($r=0.35$, 95% CI .05 to 0.59).⁷

⁴ Frequentist Pearson Correlation ($r=-0.22$, $p=0.15$).

⁵ Frequentist Pearson Correlation ($r=0.04$, $p=0.81$).

⁶ Frequentist Pearson Correlation ($r=-0.38$, $p=0.01$).

⁷ Frequentist Pearson Correlation ($r=0.35$, $p=0.03$).

4. Discussion

The findings from this study indicate that patient characteristics play a role in how staff members perceive the interpersonal style of their patients. Primary diagnosis, patient age, engagement in disruptive behavior, problems with symptoms of major mental disorder and problems with treatment or supervision response were found to be associated with the perception of affiliation of control. No associations were found between characteristics of staff members and their perception of patients' affiliation or control.

The hypothesis that patients with an antisocial personality disorder are perceived by staff as being more dominant and less affiliative (more hostile) compared to other patient groups was only partly supported. Patients diagnosed with an antisocial personality disorder are perceived as being more dominant (high score on the control dimension) compared to patients with schizophrenia or a psychotic- or schizoaffective- disorder. With regard to the affiliation dimension, there were no indications for differences between patient groups. An important point to reflect on is the co-morbidity that was present among patients within this sample. Although patients were carefully assigned to a group based on their primary diagnosis, it could be the case that other diagnoses they may have had also influenced their (interpersonal) behavior. For example, some group 3 patients had a primary diagnosis of pedophilia but some of them also had a personality disorder. In the current study, co-morbidity was not accounted for in the analyses due to the limited sample size. However, possibly the presence of other diagnoses in addition to the primary diagnosis made the differences between groups smaller and the differences within groups larger. Also, patients with other diagnoses like autism or borderline personality disorder could not be included in the group comparisons because of the small number of patients per diagnosis. Future research should take co-morbidity into account in order to get a better view on the relationship between

diagnosis and interpersonal style. Flexibility in patient's interpersonal transactions is another factor that may offer an explanation for the limited amount of differences found between patient groups. Inflexible interpersonal style is one of the defining aspects of personality disorder (American Psychiatric Association, 2013). However, individual patients will differ regarding the intensity and flexibility of their interpersonal behavioral style. Kiesler and Schmidt (2006) highlighted that theoretically effective interventions should be able to decrease the rigidity of patients' interpersonal transactions. Hence, it would be interesting to study the flexibility of interpersonal behavior of patients.

It has been argued that scores on the affiliation dimension might represent the quality of working alliance (Hafkenscheid, 2003). In research among substance abusers and sex-offenders, therapists' perceptions of patients' affiliation were found to be related to patients' and therapists' perceptions of a positive therapeutic alliance (Auerbach et al., 2008; Watson et al., 2017). In our study an association was found between patient satisfaction with daily staff, and the affiliation dimension of the IMI-CS. Despite the relatively strong association between the Therapeutic Hold scale of the EssenCES and the Daily Staff scale of the FQL, no association was found between the Therapeutic Hold scale of the EssenCES and the affiliation dimension of the IMI-CS. Although the Therapeutic Hold scale of the EssenCES and the Daily Staff scale of the FQL are related, they do measure distinct concepts. The Daily Staff scale of the FQL, measures the individual satisfaction with daily staff while the EssenCES invites respondents to take the experience of other group members into account. It could be that differences in the perspective used within these instruments are related to the different outcomes (de Vries et al., 2018).

The results of the path analysis indicated that the way patients were perceived by staff members regarding control and affiliation, was best predicted by patient characteristics, such

as patient age, recent problems with treatment response, disruptive behaviour and recent problems with symptoms of psychiatric illness. The lack of predictive power of characteristics of staff members in the prediction of affiliation and control supports the notion that the IMI-CS reflects characteristics of the patient (the target) by tapping into the feelings and cognitions of the staff member (respondent) when interacting with this patient.

Affiliation was negatively predicted by recent problems with treatment response. Recent problems with treatment response, reflects problems regarding attendance and participation in treatment programs, conforming or adjusting to rules and profiting from treatment or risk management within the facility. Patients with problems in this area were seen as less friendly by staff. It could be that these patients avoided staff or that they may have had more negative interactions with them (possibly caused by staff members trying to get patients to attend treatment or to adjust their behavior). Patient age was a positive predictor of the affiliation dimension. It might be hypothesised that with increasing age patients become more calm and social. Patients might get more notion of, and respect for the work and effort that staff members put in their recovery. Research on the course of personality disorders throughout the lifespan is relatively scarce. There is limited knowledge on the impact of personality disorders in later life for instance regarding social functioning (for an overview see Oltmanns and Balsis, 2011).

The control dimension was positively predicted by patients' disruptive behaviour within the facility. Disruptive behaviour included threatening or aggressive behaviour (verbal and physical), but mostly consisted of not complying/following staff's instructions or requests. In order to regain or retain safety and control, staff members might react to the dominant (deviant and aggressive) behaviour of patients in an assertive or controlling way. It has been hypothesised that such reactions trigger an increased wish for control in patients who

have a persistent need for dominance, possibly resulting in aggressive acts by these patients (Daffern et al., 2008; Livesley, 2003). Patients' level of recent problems with symptoms of psychiatric illness, including symptoms of psychotic illness, mood disorder or illness affecting intellectual, executive or inter-personal functioning, was a negative predictor of the control dimension. Patients with higher levels of psychiatric symptoms are experienced by staff members as being less controlling.

In order to determine the possible role of characteristics of staff on their perception of patients' affiliation and control, age, level of experience and gender were included as predictors. The hypothesis that these characteristics would play a role in the perception of affiliation and control was not supported. However, additional research is needed including other characteristics of staff members than those included in this study, for instance personality or attitude of staff members. For instance, staff's conceptions may play a role in stigmatization of patients with a substance use disorder, or in determining attitudes towards paedophilic patients or in the way of coping with aggression problems, as there are studies indicating that attitudes of staff members are related to healthcare delivery (van Boekel et al., 2013; Verhaeghe et al., 2014). As interaction is a bi-directional process also the interpersonal style of staff members could be an important factor to take into account (Watson et al., 2017).

It is important to consider the potential limitation that only a portion of the staff working within a single high secure forensic institution participated in this study, and that this could have had an impact on the findings. In the future, bigger samples should be obtained from multiple facilities in order to investigate the stability and generalizability of our results. Secondly, patients were divided into groups based on their primary diagnosis, and comorbidity was not taken into account. It could be that the presence of additional disorders affected interpersonal functioning. It would be interesting to take, for instance, psychopathy

into account as there are indications that patients with schizophrenia and high levels of comorbid psychopathy have a distinctive interpersonal (i.e., more coercive) style compared to patients with schizophrenia without comorbid psychopathy (Fullam and Dolan, 2006). Thirdly, the occurrence of disruptive behavior among patients included incidents registered by staff members. The information was limited to occurrence date, the patient that was involved, and the type of behavior / incident, for instance *not following staff instructions* or *verbal aggressive behavior*. A next step would be to look further into the specific occurrences to examine the antecedents, the severity and consequences of disruptive behavior. This could be done by using an incident-based instrument such as the staff observation aggression scale - revised (SOAS-R: Nijman et al., 1997).

Fourthly, the Cronbachs alpha's of the S scale indicated that the items of this sub-scale did not seem to measure the same concept within this group. The item that did not seem to fit with the other items in the S scale is *'when I am with him he makes me feel in charge'*. In the Dutch version of the IMI-CS the translation is not very tight. The Dutch item represents something like: when I am with him he makes me feel responsible for the course of events. It could be reasoned that feeling 'responsible for the course of events' when interacting with a patient does not necessarily imply that a patient is submissive. A patient that is dominant and high demanding towards a staff member could also make a staff member feel responsible. Another line of reasoning is that in a mandatory treatment setting like the Pompestichting, staff members need to be in charge by definition, even with dominant and highly demanding patients. Therefore, this item might be confusing to staff members, referring to the specific context of a forensic setting, rather than to the interpersonal behaviors of specific patients".

These results are different from the results reported by Sodano et al. (2013), who found acceptable alpha's for all subscales in a sample of 1512 ratings of non-forensic

psychiatric patients. As their study was the first one validating the 32-item version of the IMI, they recommended that further validation efforts are needed in a sample where the short version was not embedded within the full length scale, as was the case in their work. Our study is the first to use this short version in a high secure forensic setting, more studies are needed that look into the psychometric properties of this instrument in this particular population.

Finally, the results on the relationships between how staff members perceive the interpersonal style of their patients and how patients perceive ward climate and daily staff are based on data of a subgroup of 45 patients. Therefore, these results need to be interpreted with caution and studies replication these results are needed in order to draw firm conclusions.

Despite these limitations, this study contributes to an important and somewhat neglected theme within high secure forensic settings, namely how patients are perceived by staff members and how this relates to patient and staff characteristics and important factors in inpatient care. Although this study was explorative it fosters our thinking on interpersonal behaviour and the challenging aspects of patient-staff interactions. Gaining more insight in which factors and processes play a role in these interactions might help us in effectively using the patient-staff interactions in maintaining safety and promoting the rehabilitation of patients. This current study contributes to theory on responsivity, a key element of effective forensic care. Hence, one of the leading models underlying effective forensic care is the Risk-Need-Responsivity (RNR) Model (Andrews and Bonta, 2010). The model describes three principles important for offender rehabilitation. The *risk principle* focusses on who should be treated (the level of risk of reoffending and the intensity of treatment need to be aligned). The *need principle* describes what should be treated (criminogenic needs i.e. dynamic risk factors). The *responsivity principle* addresses how an intervention should be delivered to patients. The

importance of the therapeutic relationship and taking a patient' bio-demographic characteristics, learning style, personality and abilities into account are addressed by this third principle.

Awareness among staff members of what their patients evoke in them could be useful for relating to patients in the right way, choosing effective interactional strategies, seeing behaviour and interactional processes in the light of patients problems, and de-escalation in tense situations. Although further research is needed, it seems worthwhile to explore the use of the IMI-CS within the forensic inpatient setting further. It might help to make somewhat implicit feelings more explicit for staff members, and assessable for team discussion, training and supervision. Gaining this knowledge, will likely help improve the quality of care and treatment further.

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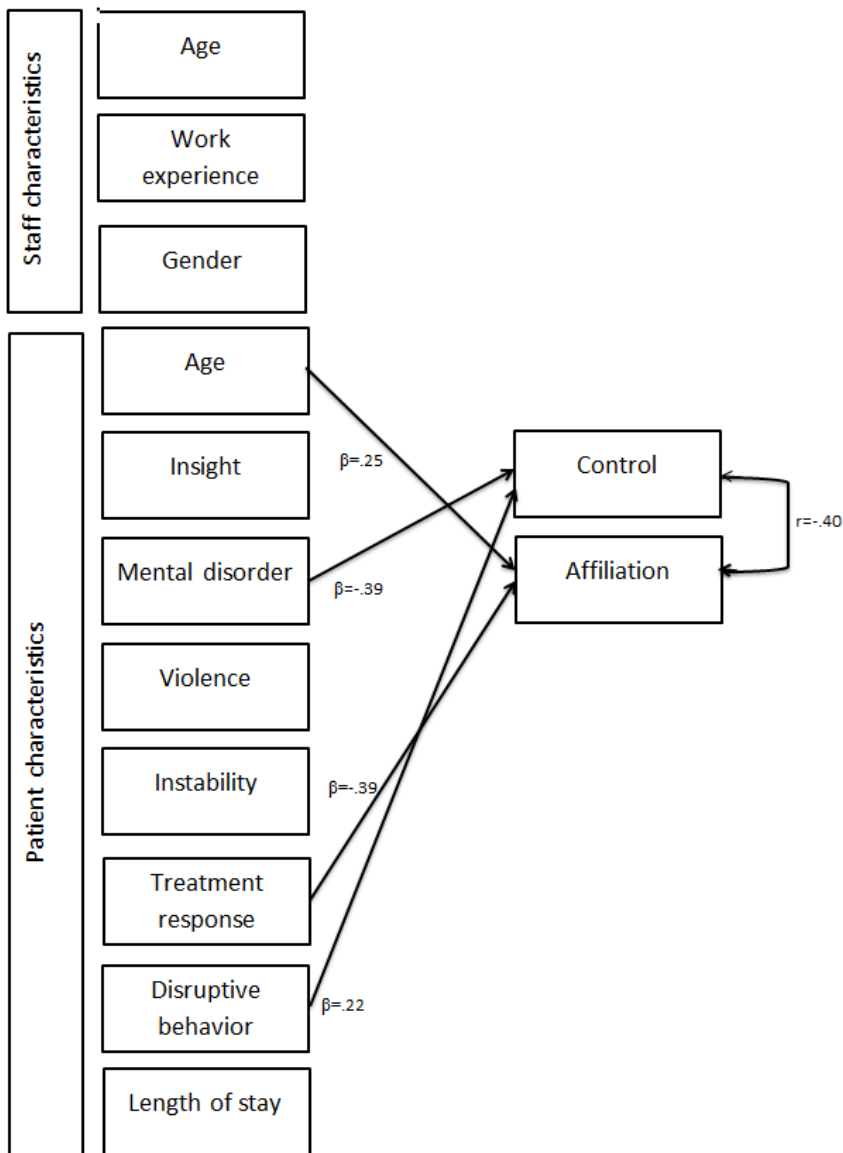


Figure 1. Bayesian path analysis ($n=115$), patient and staff characteristics on affiliation and control, only significant associations are displayed.

Table 1. Demographic (and clinical) characteristics of staff and patients

Characteristic	Result
Raters (staff members) <i>N</i> =69	
Gender: female (%)	37 (54%)
Age, years: mean (<i>SD</i> ; range)	41 (12; 22-66)
Length of employment as forensic nurse years: mean (<i>SD</i> ; range)	9 (5; 0-29)
Targets (patients) <i>N</i> =102	
Gender: male (%)	102 (100%)
Age, years: mean (<i>SD</i> ; range)	45 (11; 23-82)
Length of stay, months: mean (<i>SD</i> ; range)	67 (51; 8-183)
Main diagnosis	
Schizophrenia/psychotic (%)	41 (40%)
Pedophilia (%)	16 (16%)
Antisocial personality disorder (%)	20 (20%)
Other	25 (25%)
Autism	8
Personality disorder NOS	11
Borderline	2
Drug elicited psychosis	2
Other	2
Main dimensions IMI-CS	
Control IMI-CS: mean (<i>SD</i> ; range)	0.05 (1.44; -3.16-3.95)
Affiliation IMI-CS: mean (<i>SD</i> ; range)	0.45 (2.00; -4.49-5.16)
EssenCES subscales	
Experienced safety: mean (<i>SD</i> ; range)	11.14 (5.33; 0.00-20.00)
Therapeutic Hold: mean (<i>SD</i> ; range)	9.31 (5.00; 0.00-19.00)
Patient Cohesion: mean (<i>SD</i> ; range)	8.48 (3.67; 0.00-14.00)
HCR-20 clinical subscales	
Insight: mean (<i>SD</i> ; range)	1.42 (0.54; 0.00-2.00)
Mental disorder: mean (<i>SD</i> ; range)	0.53 (0.43; 0.00-1.33)
Violence: mean (<i>SD</i> ; range)	0.43 (0.68; 0.00-2.00)
Instability: mean (<i>SD</i> ; range)	0.85 (0.70; 0.00-2.00)
Response: mean (<i>SD</i> ; range)	1.08 (0.66; 0.00-2.00)
FQL Daily staff: mean (<i>SD</i> ; range)	3.46 (0.78; 1.53-4.73)
Disruptive behavior (during six months)	
Rule violation: mean (<i>SD</i> ; range)	1.12 (2.13; 0-11)
Acting out: mean (<i>SD</i> ; range)	1.32 (3.67; 0-27)
Sexual harassment: mean (<i>SD</i> ; range)	0.17 (0.75; 0-6)
Hostage taking: mean (<i>SD</i> ; range)	0.01 (0.10; 0-1)
Threatening: mean (<i>SD</i> ; range)	0.18 (0.52; 0-3)

Table 2. Main dimensions of the IMI-CS control and affiliation per patient group

	Control			Affiliation		
	Mean	<i>SD</i>	<i>N</i>	Mean	<i>SD</i>	<i>N</i>
Group 1	-0.23	1.28	50	0.25	2.15	50
Group 2	0.73	1.16	28	0.58	1.87	28
Group 3	0.00	1.41	20	0.46	2.31	20

Note: Group 1: Schizophrenia/psychotic; Group 2: APD (Antisocial personality disorder); Group 3: Pedophilia.

Table 3. Standardized results of the Bayesian path analysis ($n=115$).

Dependent variables	Predictor	Estimate (β)	95% C.I.	
			Lower 2.5%	Upper 2.5 %
Control	Age staff	-0.093	-0.329	0.148
	Experience staff	0.028	-0.190	0.246
	Gender staff	0.039	-0.130	0.205
	Age patient	0.016	-0.186	0.218
	Length of stay patient	0.166	-0.038	0.360
	Disruptive behaviour	0.223	0.016	0.416*
	Insight	0.090	-0.156	0.332
	Mental disorder	-0.390	-0.567	-0.187*
	Violent ideation or intent	0.021	-0.153	0.195
	Instability	0.097	-0.133	0.320
	Responsiveness	0.034	-0.233	0.302
	Affiliation	Age staff	0.131	-0.114
Experience staff		-0.053	-0.271	0.169
Gender staff		-0.104	-0.269	0.067
Age patient		0.251	0.042	0.444*
Length of stay patient		0.010	-0.195	0.212
Disruptive behaviour		-0.041	-0.246	0.167
Insight		0.132	-0.120	0.372
Mental disorder		0.027	-0.177	0.228
Violent ideation or intent		-0.092	-0.264	0.087
Instability		0.071	-0.163	0.298
Responsiveness		-0.385	-0.632	-0.106*
Control		Affiliation	-0.397	-0.549

Note. * marks significant estimate.

Table 4. Bayesian Correlations

		Control	Affiliation	DS	ES	TH	PC	
Control	Posterior	Mode	-0.36	0.12	-0.38	-0.22	-0.19	
		Mean	-0.35	0.11	-0.35	-0.20	-0.17	
		Variance	0.01	0.02	0.02	0.02	0.02	
	95% CI	Lower bound	-0.50	-0.19	-0.60	-0.47	-0.45	
		Upper bound	-0.20	0.40	-0.10	0.07	0.11	
	<i>N</i>		130	40	44	45	44	
	Affiliation	Posterior	Mode		0.35	0.18	0.04	-0.07
Mean				0.33	0.16	0.04	-0.07	
Variance				0.02	0.02	0.02	0.02	
95% CI		Lower bound		0.06	-0.12	-0.25	-0.35	
		Upper bound		0.59	0.44	0.32	0.22	
<i>N</i>				40	44	45	44	
DS		Posterior	Mode			0.01	0.63	0.19
	Mean				0.01	0.60	0.18	
	Variance				0.02	0.01	0.02	
	95% CI	Lower bound				-0.29	0.41	-0.12
		Upper bound				0.31	0.79	0.47
	<i>N</i>				39	40	39	
	ES	Posterior	Mode				0.34	0.46
Mean						0.32	0.43	
Variance						0.02	0.02	
95% CI		Lower bound					0.06	0.19
		Upper bound					0.57	0.66
<i>N</i>						44	43	

Note. DS=FQL Daily Staff, ES=Experienced Safety, TH=Therapeutic Hold, PC=Patient Cohesion