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## **Nursing staff stress and individual characteristics in relation to the ward atmosphere in psychiatric in-patient wards**

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### **Abstract**

This study investigated the interplay between nursing staff stress, mastery, moral sensitivity, individual characteristics and the ward atmosphere in psychiatric in-patient care. Data were collected through five questionnaires from 93 nursing staff. Multivariate analysis showed that Moral Strength, Moral Burden and Internal Demands were related to several factors of the ward atmosphere, including general stress and age. We conclude that efforts to reduce stress levels and create a supporting ethical climate on psychiatric wards would be beneficial for both the psychiatric nursing staff and their nursing practice.

**Keywords:** Care environment, Mental health nursing, Moral, Questionnaire, Stress

In recent decades in Sweden and many other countries, changes in the psychiatric care system have led to a radical shift from hospital care to an expansion of psychiatric care and treatment given in the community (Papoulias, Csipke, Rose, McKellar, & Wykes, 2014; Ward, 2013). However, psychiatric in-patient care still has an important role (Papoulias et al., 2014) providing care for patients in the acute phase of their mental health problems (Ward, 2013). There is a need to enhance our understanding of the ward atmosphere in in-patient contexts, not least since this is also a place where people work. This work situation has been described as demanding, unpredictable and challenging (Johansson, Skärsäter, & Danielson, 2013; Ward, 2013), but also as meaningful and stimulating (Johansson et al., 2013). Yet, little is still known concerning how the staff and their stress levels are related to the ward atmosphere in psychiatric in-patient wards.

Perceptions of the ward atmosphere in the psychiatric care context is a well-researched area. In the late 1930s, Murray (1938) suggested that environments have distinct personalities, which was an idea supported by Moos (1997). Rigby, Leach and Greasley (2001) stated that a ward atmosphere is composed of unique characteristics that give the ward unity and bearing, and another study suggests that it is shaped by social structures and interactions (Eklund & Hansson, 1997). A further study suggested that the ward atmosphere is shaped by staff actions in particular (Edvardsson, Holritz Rasmussen, & Kohler Riessman, 2003), highlighting the potential importance of the staff and their work situation for the characteristics of the ward atmosphere. Studies investigating the relationship between the characteristics of the staff, their work situation and the ward atmosphere are limited, but one study found that high scores on the ward atmosphere factor of Order and Organization were associated with low burnout scores among nursing staff in psychiatric in-patient wards (Bowers, Allan, Simpson, Jones, & Whittington, 2009). Røssberg, Melle, Opjordsmoen and Friis (2008) found that staff satisfaction correlated positively with Practical Orientation, and negatively with Staff Control.

Another study found associations between the psychosocial work environment of nursing staff and the ward atmosphere. For example, participants perceiving their professional roles as clear also rated the ward atmosphere factor of Program Clarity as high (Tuveßson, Wann-Hansson, & Eklund, 2011).

Following the idea that the staff themselves and their situation might be important for determining and characterising the ward atmosphere, the perceptions of stress among the staff should be considered. In particular, two forms of stress may be important for the ward atmosphere in psychiatric in-patient wards. First, general stress has been described as the degree to which a person experiences life as unpredictable, strenuous and uncontrolled (Cohen, Kamarck, & Mermelstein, 1983). Second, Stress of Conscience, which is another form of stress originating from a troubled conscience, is described by Glasberg et al. (2006) as ‘a product of the frequency of the stressful situation and of the perceived degree of troubled conscience as rated by healthcare personnel themselves’ (p. 636). Numerous studies have investigated stress in psychiatric nursing staff. The findings seem inconsistent, with some studies suggesting that the work in psychiatric care is stressful (Currid, 2009; Happel, Martin, & Pinikahana, 2003; Sørgaard, Ryan, & Dawson, 2010) and others suggesting that psychiatric staff cope well with stress and, therefore, their stress levels are not serious (Bowers et al., 2009; Richards et al., 2006). Feelings of inadequacy in care situations have been described as leading to a troubled conscience among psychiatric staff (Dahlqvist, Söderberg, & Norberg, 2009). Stress of Conscience has also been found to be related to burnout in psychiatric staff (Gustafsson, Eriksson, Strandberg, & Norberg, 2010). Another study indicated that general stress and Stress of Conscience influenced the perceptions of the psychosocial work environment among nursing staff in psychiatric in-patient care (Tuveßson & Eklund, 2014), which raises questions regarding their roles in the perception of the ward atmosphere.

Another aspect to consider in relation to ward atmosphere is Moral Sensitivity, which can be understood as attention to or awareness of moral conflicts, values and implications (Glasberg, 2007). The experience of Moral Sensitivity can be burdensome and Lützén, Dahlqvist, Eriksson and Norberg (2006) describe Moral Burden as one aspect belonging to Moral Sensitivity. Moral Burden can be experienced in situations when a person is unable to act in accordance with what one believes is right. Another aspect of Moral Sensitivity is Moral Strength which can be triggered by Moral Burden and involves a sense of courage to act in moral situations. Moral Sensitivity is present in everyday nursing practice as practical wisdom, which includes a person's understanding of the patient's situation and assists in the ethical decision-making process (Lützén & Nordin, 1993; Weaver, Morse, & Mitcham, 2008). This indicates that Moral Sensitivity may be another important aspect for the perception of ward atmosphere. Previous research indicates that Moral Sensitivity is related to stress of conscience (Glasberg, 2007; Lützén, Blom, Ewalds-Kvist, & Winch, 2010; Tuveesson, Eklund, & Wann-Hansson, 2012). However, to the best of our knowledge, the relationship between the Moral Sensitivity of nursing staff and their perceptions of the ward atmosphere in psychiatric in-patient care has not been previously investigated.

When trying to understand the situation of the nursing staff and how they perceive the ward atmosphere, their coping strategies and individual characteristics may be important. Coping strategies have been described as a response or strategy used to deal with a perceived threat (Lazarus, 2006). Mastery can be understood as a type of coping mechanism and has been defined as 'the extent to which one regards one's life-chances as being under one's own control in contrast to being fatalistically ruled' (Pearlin & Schooler, 1978, p. 5). Experiencing a high degree of Mastery has been found to protect the nursing staff from perceiving high levels of Stress of Conscience in psychiatric in-patient care (Tuveesson et al., 2012), but little is known concerning the role of nursing staff Mastery in relation to the ward atmosphere. Few

previous studies have investigated the association between individual characteristics of the nursing staff and the ward atmosphere. In an early study, male psychiatric staff were found to perceive higher values than females with regard to order and organization of the ward (Zillmer, Archer, & Glidden, 1986). Inconsistent results have been reported concerning age, work experience and the ward atmosphere. One study found age to be unrelated to the ward atmosphere (Jansson, Johansson, & Eklund, 2013) and another (Squier, 1994) found that younger staff rated the ward atmosphere factors of Autonomy and Personal Problem Orientation higher than the older staff did. In the latter study, staff with longer work experience also perceived Autonomy and Personal Problem Orientation higher than staff with shorter work experience (Squier, 1994); however, Zillmer et al. (1986) found that staff with longer work experience perceived lower levels of quality in relationships and order and organization of the ward, compared to less experienced staff.

There seems to be a paucity of research addressing how staff factors, such as stress, Mastery, Moral Sensitivity and individual characteristics, interact with the ward atmosphere in psychiatric in-patient care. Knowledge of that interplay could broaden our understanding of the ward atmosphere. Thus, the aim of this study was to investigate how stress, Mastery, Moral Sensitivity and the individual characteristics of staff were related to the ward atmosphere as perceived by nursing staff in psychiatric in-patient care.

## **Methods**

This survey had a cross-sectional design, and data were collected in 2009.

### **Setting and participants**

A detailed description of the recruitment of participants, the setting and the study sample has been reported previously (Tuveson, 2011). In summary, a convenience sample of

93 nursing staff (registered nurses and nurse assistants) was recruited from 12 general psychiatric in-patient wards in southern Sweden. These wards represented smaller and larger hospitals in various geographical locations. Inclusion criteria were (1) working during the day; and (2) having worked at the ward for a minimum of 2 months. A total of 38 registered nurses (response rate = 54.3%) and 55 nurse assistants (response rate = 50.5%) participated in the survey. Women constituted 78% of the sample and the majority (86%) were permanently employed at the ward. The mean age was 48 years with a significant age difference between registered nurses (45 years) and nurse assistants (50 years) ( $p = 0.016$ ). There was also a significant difference between the two staff groups concerning work experience in psychiatric healthcare. Nurse assistants had longer mean experience in psychiatric care (20 years) compared with registered nurses (15 years) ( $p = 0.033$ ). The average length of experience in working on the current ward was 9 years in the total sample with no significant differences between the two staff groups.

### **Ethical considerations and data collection**

Before commencing the study, ethical approval was granted from the regional Ethical Review Board (Reg. No. 380/2008) and permission to conduct the study was obtained from clinical directors and ward managers. Throughout the study, the principles of confidentiality, voluntary participation and the right to withdraw at any time were employed. Oral information about the study was given at each ward by the first author. A questionnaire, together with a letter and written information attached, was sent to all nursing staff at these wards. Participants who decided to participate in the study signed an informed consent form and returned it to the authors, together with the questionnaire, in a sealed envelope.



## **Instruments**

The present study used five self-report instruments, assessing the ward atmosphere: Perceived Stress, Stress of Conscience, Moral Sensitivity and Mastery. Individual characteristics of the nursing staff were assessed by six questions; age, sex, occupation (nurse or nurse assistant), form of employment (temporary or permanent), length of experience from working in psychiatric healthcare and length of experience from working on the current ward.

### **Ward Atmosphere Scale.**

The Ward Atmosphere Scale (WAS) assesses different psycho-social aspects of the psychosocial climate on a ward or program (Moos, 1997). The present study is based on a revised, updated Swedish version of the WAS (Tuveson, Wann-Hansson, & Eklund, 2010). This revised WAS comprised 83 items with a four-point scale ranging from ‘totally disagree’ (0) to ‘totally agree’ (3). It was divided into 11 factors: Involvement, Support, Spontaneous Behaviour, Autonomy, Practical Orientation, Personal Problem Orientation, Anger and Aggressive Behaviour, Order and Organization, Program Clarity, Staff Control, and Staff Attitude to Expressed Feelings (Røssberg & Friis, 2003a; Røssberg & Friis, 2003b; Tuveson et al., 2010). Six of these factors were used in the present study: Involvement, Practical Orientation, Personal Problem Orientation, Anger and Aggressive Behaviour, Order and Organization, and Program Clarity (Table 1). The other five factors were omitted because of a low Cronbach’s alpha ( $\alpha < 0.5$ ).

### **Perceived Stress Scale.**

The Perceived Stress Scale (PSS) was developed by Cohen et al. (1983) in order to assess general stress and to what degree life was perceived as unpredictable, strenuous and uncontrolled. The 14-item instrument used for this study has been translated into Swedish

(Eskin & Parr, 1996) and has shown satisfactory psychometric properties (Eklund, Bäckström, & Tuveesson, 2014). The respondents were asked to give their responses on a five-point scale ranging from 'never' (0) to 'very often' (4). The maximum score was 56 and a higher score indicated higher levels of perceived stress.

### **Stress of conscience questionnaire.**

The Stress of Conscience Questionnaire (SCQ) was applied to measure stress connected to a troubled conscience and has previously shown good internal consistency (Glasberg et al., 2006). The SCQ comprised nine items, where each item consisted of Part A and Part B. In Part A, the respondents were asked to assess how often they experienced a specific situation at work on a six-point scale, ranging from 'never' (0) to 'every day' (5). For example, 'How often do you lack the time to provide the care the patient needs?' In Part B, the respondents were asked to assess the intensity of a troubled conscience generated by that specific situation on a 100 mm visual analogue scale ranging from 'no, not at all' (0) to 'yes, it gives me a very troubled conscience' (5). An index for each item was created by multiplying the scores in Part A with the scores from Part B. The maximum score was 225 and a higher score represented a higher level of stress of conscience (Glasberg et al., 2006). In the present study, a total index of all nine items, as well as two aggregated factors: Internal Demands and External Demands and Restrictions, was used.

### **Moral Sensitivity Questionnaire.**

In order to assess the respondent's Moral Sensitivity, the revised Moral Sensitivity Questionnaire (MSQ) was used (Lützén et al., 2006). It comprised nine items that were answered on a six-point scale ranging from 'total disagreement' (1) to 'total agreement' (6). A three-factor structure was identified: Moral Burden, Moral Strength and Moral Responsibility. In the present study, the factor of Moral Responsibility (comprising two items) was found to

have poor internal consistency (Cronbach's  $\alpha = 0.34$ ) and was therefore analysed at the item level.

### **Mastery Scale.**

The Mastery Scale, developed by Pearlin and Schooler (1978), assesses the respondent's perceptions of having control over his or her life. The scale comprises seven items and the Swedish version used in the present study showed satisfactory internal consistency (Eklund, Erlandsson, & Hagell, 2012). The participants answered each item on a four-point scale ranging from 'strongly agree' (1) to 'strongly disagree' (4), and the summed score of these seven items was used for the current study.

### **Statistical analysis**

The data were analysed using the software of the SPSS version 23 (IBM SPSS Statistics for Windows, Version 23.0.). Non-parametric statistics were used and descriptive analyses were performed in order to describe individual characteristics of the sample and give the response distribution on the ward atmosphere factors. The Mann-Whitney *U*-test and chi square tests were used for analysing the differences in perceptions of the ward atmosphere between the sub-groups. In order to investigate the association between variables and to detect which variables to include in the multivariate logistic regression analysis, univariate logistic regression analysis was used. A *p*-value of  $< 0.25$  was used for the inclusion of variables for the multivariate analysis, and a *p*-value of  $< 0.05$  was regarded as statistically significant. Backward stepwise conditional logistic regression models were performed with the six ward atmosphere factors as the dependent variables. Both the dependent and the independent variables were dichotomized according to the medians to create both a high and a low group on each variable. The results of the univariate and the multivariate regression models are presented as odds ratios (OR) with 95% confidence intervals (CI).

## Results

The ratings (theoretical range 0–3) of the ward atmosphere factors were moderately high for most of the factors: Involvement (mean = 1.48), Order and Organization (mean = 1.63), Practical Orientation (mean = 1.79) and Program Clarity (mean = 1.80). The highest mean score was found for Personal Problem Orientation (mean = 2.10) and the lowest for Anger and Aggressive Behaviour (mean = 1.08). There were no significant differences on any of these ward atmosphere factors between the sub-groups based on nursing staff characteristics: age, sex, occupation, work experience in psychiatric healthcare and work experience on the current ward ( $p$ -values between 0.080 and 0.944).

The odds ratios reaching  $p < 0.25$  from the univariate binary logistic regressions are presented in Table 2. Ten variables were found to be associated with the ward atmosphere factor of Order and Organization; seven variables were associated with Program Clarity; five with Involvement; four with Practical Orientation; and finally, one variable was found to be associated with Personal Problem Orientation. These variables were included for further multivariate analysis.

Logistic regression analyses were conducted with the variables that showed an association with the respective ward atmosphere variable ( $p < 0.25$ ) to investigate to what extent these variables predicted the ward atmosphere (Table 3). Multivariate analysis showed that participants belonging to the high group regarding the Stress of Conscience factor Internal Demands had approximately fourfold odds for perceiving high levels of Anger and Aggressive Behaviour (OR = 4.599) and perceiving low levels of Practical Orientation (OR = 0.385). Participants belonging to the high group regarding the Moral Sensitivity factor Moral Strength had an increased likelihood of perceiving low levels of Anger and Aggressive Behaviour (OR = 0.346) and high levels of Program Clarity (OR = 3.228). Scoring high regarding the Moral Sensitivity factor, Moral Burden, was also associated with a decrease in

program clarity (OR = 0.265). Participants who perceived high levels of Perceived Stress had an increased likelihood of scoring low on the factors Involvement (OR = 0.227) and Order and Organization (OR = 0.263). Also, being in the older age group was related to low scores on Involvement (OR = 0.308) and Order and Organization (OR = 0.308). The analyses further revealed that participants belonging to the high group regarding Moral Burden had reduced odds of perceiving a high level of Program Clarity (OR = 0.295).

## **Discussion**

The present study investigated how the nursing staff's stress situation, Moral Sensitivity, Mastery and individual characteristics were associated with their perceptions of the ward atmosphere. Logistic regression analyses showed that the Stress of Conscience factor (named Internal Demands) and the Moral Sensitivity factor (named Moral Strength) were important factors in explaining the variation in the ward atmosphere variable: Anger and Aggressive Behaviour. Aggression and violence in psychiatric in-patient care has long been debated and have been described as arising from complex interactions between staff and patients, together with the culture of the particular ward (Hamrin, Iennaco, & Olsen et al., 2009). Patient–staff interactions and communication problems seem to be the strongest antecedent of aggression and violence in psychiatric in-patient care (Hamrin et al., 2009; Papadopoulos et al., 2012), and nursing staff working on psychiatric wards often tend to be involved (Cornaggia, Beghi, Pavone, & Barale, 2011). In the present study, the nursing staff's inner moral demands and strength seemed to influence their perceptions of Anger and Aggressive Behaviour. Although the direction of causality could not be determined by the cross-sectional design of this study, it is possible that experiencing Stress of Conscience in terms of Internal Demands may negatively affect interactions and communication, which, in turn, could trigger challenging emotions, such as anger and aggression. Nursing staff suffering from a troubled conscience may need to distance themselves in order to cope with the work

situation, which might impair their relationships with the patients. Furthermore, the findings indicate that participants with high levels of Moral Strength perceived lower levels of Anger and Aggressive Behaviour, which further illustrates the complex nature of relationships between ethical and moral experiences and the perception of aggression. It is possible that by having a high sense of Moral Strength, some nursing staff may be more able to recognize subtle antecedents of Anger and Aggressive Behaviour and thus have the courage to act, make moral decisions, prevent aggression and by so perceive the levels as low. One could speculate that a culture allowing ethical discussions at work may be useful in order to reduce the risk of a troubled conscience and stressful Internal Demands and to enhance Moral Strength, which, by various routes, may lower the levels of aggression on the wards. This is an area that merits further study.

Our findings also indicated that experiencing low levels of Moral Burden and high levels of Moral Strength increased the likelihood of perceiving high levels of Program Clarity. Program Clarity reflects aspects of stability and clarity in the treatment structure. Moral Burden and Moral Strength may be seen as two sides of the same coin. Moral Burden can be understood as being morally sensitive, while also experiencing ethical demands more distinctly and as burdensome (Glasberg, Eriksson, & Norberg, 2007). In an interview study, Johansson and colleagues (2013) found that nursing staff expressed a sense of responsibility for the work and for the patients' wellbeing on psychiatric wards, which led to feelings of burden (Johansson et al., 2013). In another interview study, Gabrielsson, Sävenstedt and Olsson (2016) found that nursing staff that were morally strong took responsibility for their nursing practice in psychiatric in-patient care. They concluded that a silent conscience was counterproductive to good nursing practice. Our study suggests that when experiencing low levels of Moral Burden, staff may find it easier to maintain clarity concerning the treatment structure and the psychiatric nursing practice. In addition, it might be worth considering the

possibility that some staff might be distant, unable to recognize moral sensitive situations and by so feel somewhat free of moral burden while remaining clear regarding treatment structure. Furthermore, having Moral Strength might allow the staff to actively engage in the care of and the caring relationship with patients, and thus contribute to the overall stability and structure of treatment and psychiatric nursing practice. This is in line with another study, where staff in psychiatric in-patient care experienced a lack of structure in the care of patients, which led to difficulties in maintaining their professional ideals and to their withdrawal from patient contact (Molin, Hällgren Graneheim, Ringnér, & Lindgren, 2016).

In addition, higher scores concerning the Stress of Conscience factor (Internal Demands) increased the odds of scoring high on Practical Orientation, involving how the staff and the care activities guide and help patients to solve problems and support their resources and skills. No previous studies seem to have focused directly on this association, but one could speculate that the nursing staff's ability to engage in patients, to guide and support them, would require the staff to be cognitively and emotional present which might be facilitated by the absence of a troubled conscience in terms of Internal Demands.

This study has shown that low levels of perceived stress and being younger were related to a higher level of Involvement. Conversely, nursing staff with high levels of stress would perceive low levels of Involvement. This confirms research that shows that nurses in psychiatric in-patient care experience their work as being too stressful, which results in difficulties planning patient activities and living up to the staff's ideals of nursing care (Graneheim, Slotte, Säfsten, & Lindgren, 2014). Involvement can be understood as the degree of patient activity, engagement and energy on the ward, and was the factor with the lowest mean rating after Anger and Aggressive Behaviour. A literature review concluded that few patient activities and social engagements take place on psychiatric wards (Sharac et al., 2010), and being a patient on psychiatric wards has been described as boring (Shatell, Andes, &

Thomas, 2008). Furthermore, having too few activities was described as negative in a forensic psychiatric context (Brunt & Rask, 2007). Lack of organized activities on the wards might leave the nursing staff responsible for arranging activities themselves, something that might be difficult to achieve during pressure and stress. Thus, it is possible that high levels of Perceived Stress in the nursing staff might limit and reduce the number of activities, and lower the scores on Involvement. This study also found a significant relationship between age and Involvement and – to the best of our knowledge – this relationship has not previously been reported. One might speculate that younger nursing staff are more motivated to initiate activities on the wards and therefore contribute to more patient Involvement. Another explanation to why the younger staff perceived more Involvement could be that the older staff had experiences from now-abandoned care environments to compare with, which allowed for more organized activities, such as occupational therapy in in-patient care and, thus, more patient Involvement.

This study also found a relationship between high perceived stress, older age and a low level of Order and Organization. This ward atmosphere factor involves aspects of how clear, stable and evident the ward is in terms of organization, rules and daily routines (Moos, 1997). The structure, rules and regime of a psychiatric ward are important for both patients and staff (Alexander, 2006; Alexander & Bowers, 2004; Bowers et al., 2009). Bowers et al. (2009) found an association between low Order and Organization and burnout in psychiatric staff. They discussed that high morale might enable staff to establish high levels of Order and Organization. The results of the present study could be understood in a similar way: that low levels of Perceived Stress could facilitate the nursing staff to clearly communicate and create clarity regarding ward rules and organization. The present findings also suggest that being older leaves a person more likely to perceive the Order and Organization of the ward as low. As previously mentioned, few studies have investigated the association between age and the



ward atmosphere among nursing staff in psychiatric in-patient care. An early study found that that younger staff rated the ward atmosphere sub-scales Autonomy and Personal Problem Orientation higher than older staff in psychiatric in-patient care (Squier, 1994). However, Jansson et al. (2013) found age to be unrelated to the ward atmosphere among staff in psychiatric community-based activity centres. The scarcity of studies and the inconsistency regarding results indicate a need for more studies on the association between nursing staff characteristics, such as age, and the ward atmosphere in psychiatric in-patient wards.

### **Limitations**

The reliability and validity of the instruments used are essential for the internal validity of a study. WAS has been extensively used, but its psychometric properties tend to be sample dependent, as indicated by a variety of studies testing its factor structure and internal consistency (Denny, Costello, & Cochran, 1984; Røssberg & Friis, 2003a, 2003b; Tuveesson et al., 2010). Moreover, the third Moral Sensitivity factor (Moral Responsibility) had poor internal consistency and was analysed as two single items. Similar problems with this factor have been demonstrated in a previous study of nurse students (Tuveesson & Lützén, 2016). We thus chose to base this study only on factors that showed adequate internal consistency in the current sample. The limit was set at  $> 0.5$ , which has been proposed as an acceptable level for group comparisons (Røssberg & Friis, 2003a, 2003b).

Furthermore, the sample may not be representative of psychiatric nursing staff in general in Sweden, partly because of the quite low response rate and partly because randomized sampling was not feasible. The generalization of findings should thus be made with caution. Still, the selection of wards represented a great variation in geographical location and in the size of the wards, hospitals and towns. Moreover, the non-responders did not differ from the responders of the study with regard to age, gender and occupation.

The fact that the data were collected as early as 2009 must be seen against the fact that the most recent psychiatric reform in Sweden took place in 1995 (The National Board of Health and Welfare, 1999). Thus, there is no known historical effect that would reasonably jeopardize the validity of the findings. It should also be noted that the cross-sectional design of the study does not allow for any conclusions about cause and effect relationship.

The logistic regression analyses explained 6.9 – 15.2% of the variation in the ward atmosphere factors. This indicate that there are other factors, not included in this study, worth considering. Besides, work environmental aspects such as staff numbers, leadership, group cooperation and work demands might impinge on the nursing staff and their situation and influence the perception of the ward atmosphere.

### **Conclusion**

This study proffers an important understanding concerning the interplay between nursing staff stress, Moral Strength, Moral Burden and the ward atmosphere in psychiatric in-patient care. Notably, the findings show a clear relationship between moral aspects, such as Moral Sensitivity and Internal Demands, and several factors of the ward atmosphere. Specific efforts should be made to enable the nursing staff to maintain their professional ideals, in order to enhance Moral Strength, to prevent a troubled conscience and to contribute to a favourable ward atmosphere. Attention should also be given to the nursing staff's general stress levels since a reduction could potentially also facilitate a ward atmosphere characterized by Order and Organization, and patient Involvement. This study further implies that fostering a supporting ethical climate on the wards (e.g. by making time and room for ethical discussions) might be a way to prevent Anger and Aggressive Behaviour and to contribute to a clear and engaging ward atmosphere. More research is needed to further investigate and clarify how staff stress, coping, moral aspects, and individual characteristics are associated with the ward atmosphere in psychiatric in-patient wards.

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## Tables

Table 1. The six included Ward Atmosphere Scale (WAS) factors

<b>WAS factors</b>	<b>Description</b>
<b>Involvement</b>	Activity and energy of patients in the ward
<b>Practical Orientation</b>	Patients' practical skills learning and preparedness for discharge from the ward
<b>Personal Problem Orientation</b>	Patients' quest for understanding their feelings and personal problems
<b>Anger and Aggressive Behaviour</b>	Patients' arguments with each other and staff, becoming openly angry, and displaying other aggressive behaviour
<b>Order and Organization</b>	Importance of Order and Organization in the ward
<b>Program clarity</b>	The extent to which patients know what to expect in their daily routine and the explicitness of ward rules and procedures

Table 2. Univariate analysis of study variables

Dependent	Independent	<i>p</i> -value	OR	95% CI for OR
Involvement	Perceived Stress	0.001	0.211	0.084–0.529
	SCQ	0.190	0.559	0.235–1.334
	External Demands	0.194	0.566	0.239–1.337
	Mastery	0.108	1.978	0.861–4.545
	Age	0.057	0.440	0.189–1.025
Practical Orientation	Internal Demands	0.034	0.376	0.152–0.931
	External Demands	0.183	0.547	0.226–1.328
	Moral Strength	0.233	1.682	0.716–3.953
	Age	0.172	0.548	0.231–1.299
Personal Problem Orientation	Occupation	0.240	0.606	0.263–1.396
Anger and Aggressive Behaviour	Internal Demands	0.007	3.491	1.410–8.641
	External Demands	0.029	2.706	1.105–6.625
	Moral Strength	0.013	3.123	1.276–7.645
	Sex	0.164	2.037	0.748–5.547
Order and Organization	Perceived Stress	0.016	0.346	0.146–0.821
	SCQ	0.051	0.417	0.173–1.003
	Internal Demands	0.043	0.410	0.173–0.972
	External Demands	0.196	0.569	0.242–1.338
	Moral Burden	0.175	0.540	0.222–0.540
	MSQ item no. 1	0.168	1.797	0.781–4.136
	MSQ item no. 9	0.061	2.335	0.962–5.665
	Mastery	0.080	2.094	0.915–4.794
	Occupation	0.111	1.981	0.854–4.592
	Age	0.235	0.603	0.262–1.389
Program clarity	Perceived stress	0.024	0.370	0.156–0.878
	SCQ	0.051	0.418	0.174–1.005
	External demands	0.197	0.570	0.243–1.339
	Moral burden	0.008	0.290	0.115–0.729
	Moral strength	0.038	2.444	1.051–5.683
	MSQ item no. 9	0.249	1.672	0.698–4.003
	Type of employment	0.238	2.714	0.516–14.266

Note: Analyses based on univariate binary logistic regression ( $p < 0.25$ ).

CI = confidence interval; MSQ = Moral Sensitivity Questionnaire; OR = odds ratio; SCQ = Stress of Conscience Questionnaire.

Table 3. Variables of importance to aspects of the ward atmosphere

Dependent variable	Independent variable	<i>p</i> -value	OR	95% CI for OR
Anger and Aggressive Behaviour <sup>1</sup>	Internal Demands	0.002	4.599	1.710–12.366
	Moral Strength	0.039	0.346	0.126–0.950
Program Clarity <sup>2</sup>	Moral Burden	0.016	0.265	0.090–0.778
	Moral Strength	0.031	3.228	1.114–9.354
Practical Orientation <sup>3</sup>	Internal Demands	0.043	0.385	0.153–0.969
Order and Organization <sup>4</sup>	Age	0.048	0.345	0.120–0.990
	Perceived Stress	0.012	0.263	0.093–0.744
Involvement <sup>5</sup>	Age	0.020	0.308	0.114–0.834
	Perceived Stress	0.004	0.227	0.083–0.622

Note: Analyses based on a backward stepwise conditional logistic regression ( $p < 0.05$ ).  
 All three models exhibited acceptable goodness-of-fit (Hosmer-Lemeshow test ( $p > 0.05$ )).

<sup>1</sup>) 15.2% explained variance (Nagelkerke  $R^2$ )

<sup>2</sup>) 12.2% explained variance (Nagelkerke  $R^2$ )

<sup>3</sup>) 6.9% explained variance (Nagelkerke  $R^2$ )

<sup>4</sup>) 11.7% explained variance (Nagelkerke  $R^2$ )

<sup>5</sup>) 12.8% explained variance (Nagelkerke  $R^2$ )