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Janssen, W.A.

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Chapter 8.

The influence of staffing level on the use of seclusion.

Wim Janssen MSc, RN, ^a,

Eric Noorthoorn, PhD, Md, ^a

Roland van Linge PhD, ^b

Bert Lendemeijer, PhD, RN, ^{a c}

^a GGNet, (network for Mental Health Care in the region Oost Gelderland and Zutphen) Warnsveld, The Netherlands.

^b Utrecht University Medical Centre, department Nursing Science, Utrecht, The Netherlands.

^c Maastricht University, faculty Health Care Science and Ethics, department Nursing Science, Maastricht, The Netherlands.

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Abstract

Objective: This study focused on the relationship between the use of seclusion and staff characteristics, such as number of nurses on shift, male-female staff ratio, level of education and level of work experience.

Methods: A retrospective analysis of staff characteristics was applied to administrative data from ten wards in four mid-sized general psychiatric hospitals in the Netherlands.

Results: The data show that two variables were associated with seclusion rates: the male-female staff ratio and the variability in team's work experience.

Conclusion: More female and less male nurses in a shift and less variability in team's work experience predicted an increase in seclusion rates.

Introduction

In order to control and contain potentially dangerous, aggressive and violent patient behaviour, seclusion is a controversial intervention (Farrell & Dares, 1996; Berghmans, 1998). Seclusion is a very invasive approach, which restricts the patient's freedom. Patients are locked away in a specially designed seclusion room, not always in their own interest. Several authors gave attention to staffing characteristics in relation to seclusion (Mason & Alty, 1994; Morrison, 1990; Morrison & Lehane, 1995; Nijman, et al. 1994; Nijman, 1999; Terpstra, et al. 2001; Janssen, et al. 2003). Many of these studies depicted contradictory findings in reference to the influence of the number of nurses working a shift on the number of patients secluded on a particular day.

On the one hand, more nurses on a shift resulted in increased activities and diversity in working styles (Terpstra, et al. 2001). This led to an over-stimulation of patients as well as an increase in the number of patients secluded (also, Morrison, 1990). On the other hand, less personnel on a shift - often the case in the evening and at night - led to more patients secluded based on nurses' tendency to need control and prevent certain patient behaviour. (Gerlock & Solomons, 1983, Lendemeijer & Shortridge-Baggett, 1997). Way, et al (1992) and Nijman, et al (1994) concluded in their studies that the number of nurses had no significant relationship with the number of incidents involving aggression or the number of patients secluded.

Convertino, et al (1980) and Mason, (1997) showed significantly more patients were secluded when teams consisted of predominantly female members. In contrast, Morrison & Lehane, (1995) suggested that an increase in the number of males within a nursing team resulted in an increase in the number of patients secluded. Kirkpatrick's, (1989) and Nijman, et al (1994) found, however, no relationship between the male-female ratio in a nursing team and the number of patients secluded.

A well educated (Morrison & Lehane, 1995, Owen, et al. 1998) and trained staff (Fisher, 1994, Mason & Alty, 1994, Forster, et al. 1999) decreased the development of aggressive behaviour in patients and therefore the frequency of seclusions. The well-educated nurses were: (1) trained in recognising and applying preventative measures when confronted with aggression, (2) able to use self-defence techniques and (3) aware of the impact restraint and seclusion had on patients (Angold, 1989, Fisher 1994, Mason & Alty, 1994). The level of nurses' education apparently influenced the choice of interventions when caring for acute psychotic patients. Nurses with a higher education tended to set limitations for their patients, contrary to nurses with a lower education who tended to seclude their patients (Klinge, 1994). Moreover, in European countries great differences were found in the levels of nursing education and training, which impaired a good comparison (Bowers, et al. 1999).

In existing literature little attention was paid to the relationship between the nursing staff's work experience and the use of seclusion. Whittington & Wykes, (1996) and Lanza, et al (1994) focussed on the combination of work experience and the prevention of aggression. Whittington & Wykes, (1996) concluded that the majority of aggressive incidents arose as a result of patient-staff interactions. Factors such as an authoritarian attitude on the part of the nurse, inadequate communication between staff members, an incompetent staff and a limited work experience contributed to the number of incidents involving aggression. Lanza, et al (1994), however, found no relationships between the staff's work experience and the number of these.

The discussion on staffing levels was compromised by the various ways in which the concept "staffing levels" was used. Morrison & Lehane, (1995) referred to characteristics such as: male-female ratio, knowledge and experience of the team. Nijman, et al (1994) suggested that the concept could be subdivided into several variables such as: number of nurses in a team, expertise, level of education, work experience and male-female ratio. There were also other complications. Most studies, e.g. Convertino, et al (1980), Gerlock & Solomons, (1983), Nijman, et al (1994), Morrison & Lehane, (1995) were done within minor samples. Their findings were usually based on a study within a single ward or hospital or carried out among a specific group of patients. Moreover, the authors did not clearly describe ward type nor any qualitative or quantitative study methods. In summary several authors provided inconclusive data, impaired by many methodological issues. There is a need for studies using large, comprehensive and epidemiologically representative data on seclusion.

In the Netherlands, seclusion is the most widely used coercive measure to handle dangerous behaviour, with more than 70% of the situations requiring restraint carried out with seclusion. In the Dutch Special Admissions for Psychiatric Hospitals act (Wet Bijzondere Opnemingen in Psychiatrische Ziekenhuizen (BOPZ)) (GIGV, 1994), there is a clear distinction between involuntary admission or stay and involuntary treatment. Involuntary admission and stay should be initially sufficient to restrain dangerous behaviour without the necessity for involuntary treatment. In this situation patient's consent for a treatment plan is sought. Without a patient's consent regular treatment interventions cannot be carried out. In exceptional situations seclusion without a patient's permission is an option if the patient is dangerous or aggressive to him or herself, others or to the surroundings and if this behaviour can be related to disturbances in a patient's state of mind. To ensure this, Dutch law distinguishes between two different notions: emergency treatment (article 39 BOPZ) and involuntary treatment (article 38 BOPZ). Seclusion within emergency treatment may only be used when there is an unexpected imminent risk to the patient or others and if there is still no plan of treatment (as can be the case in the time between admission and preparation of the preliminary plan of treatment). The patient may only be treated for as long as necessary to reduce the danger and

for a maximum of seven days without the patient's consent. Before the end of the seven days an agreement with the patient must be worked out over continuing emergency measures as part of a plan of treatment. After this period or during a patient's involuntary stay in the hospital seclusion as an involuntary treatment can only be continued or applied (under article 38 BOPZ) if the patient resists consenting to or agreeing with the signed plan of treatment and his/her dangerous behaviour cannot be controlled otherwise. The seclusion may be continued despite the patient's resistance for an unlimited but preferably brief period of time until the imminent danger declines to acceptable levels. Seclusion against a patient's will is always the decision of the psychiatrist carried out within an emergency or plan of treatment. All means of restraint, either seclusion or otherwise must be reported to the Dutch Health Care Inspectorate (IGZ) a government department which monitors the reported restraints in retrospect.

In the decision-making process leading to seclusion nurses played a key role. Incidents often accompanied by aggression or violence required expertise, skill, and also manpower. Ever since 1996 many psychiatric hospitals in the Netherlands dealt with staff shortages and difficulties arising from the availability of qualified nurses. Whether daily staffing of the nursing team, pressure of work and composition of the nursing team influenced the use of seclusion was unclear. The main goal of this study was to explore the effects of staffing levels on the number of patients secluded. The following question was addressed: What is the impact of staff characteristics such as: number of nurses on the ward, level of education, male-female ratio and (variability in) the staff's work experience on likelihood of seclusion?

Materials and methods

Four mid-sized Dutch psychiatric hospitals with a capacity of 350 to 560 beds participated in this study. The study was carried out on four adult long-stay wards (length of stay more than one year) and six adult admission wards (length of stay shorter than one year). Patient administration, staff planning, and personnel and financial departments of participating hospitals provided data for 1997, 1998 and 1999. Patient administrations provided dates, number of seclusions and number of patients admitted per day. Staff planning departments identified staff members working each given day. Personnel and financial departments provided information on gender, level of education (higher professional = bachelor level (BSc), mid-level vocational = four year course at secondary school, nurse's aid = three years lower level course at secondary school, geriatric aid = two years lower level course at secondary school, student nurses = yet to finish courses or unqualified), work experience (in years) and employment status (staff member or temporarily hired nurse).

This study depicted staff complement by number of nurses in a team per day. In order to compare the observed wards, patient-staff ratio was calculated by dividing the number of patients admitted on the ward and the number of staff. A male-female staff ratio was calculated by dividing the number of male staff members by the number of female staff members. The team's work experience was presented by mean of years worked, calculated by summarising the work experience of each attending staff member and dividing this by the number of staff. The standard deviation (s.d.) of the team's mean work experience was used to illustrate homogeneity / variability, in other words whether or not all nurses on the ward on a certain day were very experienced. The staff's level of education-patient ratio was expressed in a variable which calculated the number of nurses per level of education per patient by dividing the number of nurses in each educational category (higher professional, mid-level vocational, nurse's aid, geriatric aid, student or unqualified) by the actual number of patients on the ward each day.

The information was collected for all the days in 1997 – 1999. For the analysis, a sample of two months per year was taken for each participating ward on rota, this included one spring term month and one fall term month. (e.g.: ward 1: in 1997: during February and August, in 1998: during April and October and in 1999: during June and December. Ward 2: in 1997: during April and October etc). Six months with incomplete data were excluded from this study. Ultimately, data from 1373 days was used in the analysis. The studied days were classified as seclusion days (one or more seclusion events recorded) or non-seclusions days (no seclusions recorded). As administrative data was used no information concerning patient and ward characteristics could be taken into account. Nor was it possible to analyse data on the basis of day, evening or night shift. Entire days (24 hours) were used in calculations. This due to a lack of registrations of seclusion time as well as exact time of handing over of shifts.

Statistical analyses.

To study associations between seclusion events and staffing variables (patient-staff ratio, mean of work experience and variability in work experience), Pearson correlation coefficients were calculated. Second, the unpaired student T-test (two-tailed) was used to test the difference of means of all staffing variables between days on which seclusions took place and days no seclusions occurred. Staffing variables for both groups were controlled by their equality of variance. Finally, a binary logistic regression analysis was used to develop a model to enable comprehension of a combination of independent staffing variables to predict the dependent dichotomous variable: days with or without seclusions. All the variables of the staffing level were removed step by step from the model (based on the value of the Wald-statistics and significance $p > 0.05$), after carefully observing the consequences of

each step. Only the variables with a significant influence on the prediction of the days with or without seclusion were maintained in the model.

Results

On the ten wards a mean of 35 patients and 14 nurses per 24 hours were observed. Every two days one patient was secluded (a mean of 0.55 seclusions per day). As shown in Table 1 the wards varied substantially in size as well as number of seclusions.

Table 1. Hospital and ward characteristics participating in the study.

	Clinical treatment facilities (1998)	Type of wards	Mean number of patients admitted on the ward	Mean number of nurses employed on the wards on 24 hour base	Mean number of seclusions per year
Hospital 1	440 beds	Long-stay	51	19	161
		Admission	38	18	336
		Long-stay	66	21	566
Hospital 2	350 beds	Long-stay	41	16	132
		Admission	34	13	127
Hospital 3	570 beds	Admission	20	10	90
		Admission	10	5	30
		Admission.	10	5	62
Hospital 4	410 beds	Long-stay	26	10	150
		Admission	25	13	275

On 505 of the 1373 studied days one or more patients were secluded (36.8 %: 234 days on admission wards and 271 days on long-stay wards). On 868 days (63.2%) no seclusion took place (567 days on admission wards and 301 on long-stay wards).

Staff complement

On the admissions wards a mean patient-staff ratio of 2.2 patients per nurse per 24 hours was observed. In the reports of the admission wards this patient-staff ratio amounted to five to six patients per nurse during day and evening shifts and up to ten to twenty patients per nurse on a night shift. This was a mean patient-staff ratio of 2.8 patients per nurse on long-stay wards. This is fitted with seven patients per nurse during the day and evening shifts and up to ten to twenty patients per nurses on a night shift. On both the admission wards and long stay wards nursing teams consisted of 93% permanent and 7% temporary staff members. A significant relationship was only found on the long-stay wards between the patient-staff ratio and the number of seclusions. An increase in the patient-staff ratio corresponded with an increase in the number of seclusions ($r_{xy} = 0.253$ $p = 0.000$) (Table 3).

In the long-term wards, an increase in number of seclusions was also associated with an increase in the ratio of patients per permanent staff members ($r_{xy} = 0.313$ $p = 0.000$) and an increase in number of temporary nurses ($r_{xy} = 0.123$ $p = 0.023$)

Table 2. Admission wards: T-test on days with or without seclusions.

	Yes /No seclusions. a	Number of days	Mean	Standard deviation.	T-test	Df	Sig.	95% Confidence Intervals
Patient-Staff ratio	Yes	234	2.2204	0.718	1.327	799	0.185	-0.033 – 0.172
	No	567	2.1511	0.653				
Male-Female ratio	Yes	230	0.9420 ^a	0.668	-4.387	585.006	0.000	-0.375 – -0.143
	No	551	1.2010 ^b	0.923				
Higher professional educated nurses (BSc)	Yes	234	0.0884	0.113	-1.542	524.299	0.124	-0.033 – 0.004
	No	567	0.1029	0.137				
Mid-level vocational educated nurses	Yes	234	0.3403	0.103	-1.236	515.835	0.217	-0.027 – 0.006
	No	567	0.3508	0.123				
Nurse's Aide	Yes	234	0.0052	0.015	1.296	395.161	0.196	-0.001 – 0.004
	No	567	0.0037	0.013				
Geriatric Aide	Yes	234	0.0018	0.013	-3.803	774.502	0.000	-0.008 – -0.003
	No	567	0.0072	0.027				
Student nurses	Yes	234	0.0380	0.041	1.197	799	0.232	-0.002 – 0.010
	No	567	0.0341	0.042				
Mean of work experience	Yes	234	6.5885	2.234	-5.284	656.606	0.000	-1.492 – -0.683
	No	567	7.6762	3.455				
Variance in team's work experience (s.d.)	Yes	234	6.1268	2.031	-5.642	559.111	0.000	-1.316 – -0.636
	No	567	7.1027	2.640				

^a Indicates a mean proportion of 47% male nurses and 53% female nurses in the team.

^b Indicates a mean proportion of 60% male nurses and 40% female nurses in the team.

Table 3. Long stay wards: T-test on days with or without seclusions

	Yes /No Seclusions ^a	Number of days	Mean	Standard deviation	T-test	Df	Sig.	95% Confidence Intervals																																																																																																																
Patient-Staff ratio	Yes	271	2.9264	0.482	5.235	570	0.000	0.132 – 0.291																																																																																																																
	No	301	2.7144	0.485					Male-Female ratio	Yes	271	0.6521 ^a	0.437	-7.821	570	0.000	-0.373 – -0.223	No	301	0.9499 ^b	0.469	Higher professional educated nurses (BSc)	Yes	271	0.038	0.033	0.014	570	0.989	-0.006 – 0.006	No	301	0.038	0.038	Mid-level vocational educated nurses	Yes	271	0.263	0.070	-5.984	570	0.000	-0.050 – -0.025	No	301	0.301	0.079	Nurse's Aide	Yes	271	0.016	0.017	3.126	570	0.002	0.002 – 0.007	No	301	0.011	0.015	Geriatric Aide	Yes	271	0.001	0.002	0.110	570	0.912	-0.001– 0.001	No	301	0.001	0.001	Student nurses	Yes	271	0.028	0.022	1.825	570	0.069	-0.001– 0.007	No	301	0.024	0.023	Unqualified nurses	Yes	271	0.007	0.001	0.170	570	0.865	-0.002– 0.002	No	301	0.007	0.001	Mean of work experience	Yes	271	6.8651	1.867	-6.675	570	0.000	-1.407– -0.767	No	301	7.9518	2,012	Variance in team's work experience (s.d.)	Yes	271	6.2100	1.23	-6.376	569.949	0.000
Male-Female ratio	Yes	271	0.6521 ^a	0.437	-7.821	570	0.000	-0.373 – -0.223																																																																																																																
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^a Indicates a mean proportion of 33% male nurses and 67% female nurses in the team.

^b Indicates a mean proportion of 47% male nurses and 53% female nurses in the team.

Staff composition according to gender.

On average more males were employed in the teams on the admission wards (male-female ratio = 1.12). On the seclusion days the proportion of males decreased to 47 %, on the other hand on days without seclusion the proportion of males increased 60 %. The T-test showed that the means of male-female staff ratio differed significantly on days with seclusions and days without seclusions (Table 2). On average, fewer males were employed in the teams on the long-stay wards (39%). On the days that patients were secluded a proportion of 33 % males was found. Again a significant difference was found in the mean of the male-female staff ratio on seclusion days and days without seclusion (Table

3). Female dominated teams on admission wards and long-stay wards secluded significantly more patients.

Staff composition according to level of education

During the entire period of this study the nursing teams consisted of 15% (median 9.1% sd. 18.4%) higher professional level staff, 74.1% (median 77.3% sd. 18.5%) staff with mid-level vocational education, 2.1% (median 0% sd. 3.9%) nurse's aides, 0.7% (median 0% sd. 4.4%) geriatric aides, 7.3% (median 5.9% sd. 8%) student nurses and 0.8% (median 0% sd. 2.2%) unqualified. Most teams consisted predominantly of mid-level vocational educated nurses. The composition of the teams as far as level of education is concerned was never constant in time and subject to daily fluctuations. On admission wards, more staff with higher professional level and mid-level vocational education were employed. This was not associated with likelihood of seclusion. On the long-stay wards there were more nurse's aides and student nurses and less mid-level vocational educated nurses on seclusion days. (Table 2 and 3).

Staff composition according to work experience

The average level of work experience was approximately seven and a half years and was on admission and long-stay wards approximately equal. On both wards longer work experience was inversely related to seclusions ($r_{xy} = -0.134$ $p = 0.000$ on admission wards and $r_{xy} = -0.187$ $p = 0.000$ on long-stay wards) (Table 2 and 3).

The homogeneity / variability in a team's work experience (s.d.) amounted to a mean of 6 years for all the wards. These were associated with the seclusion events both on the admission ($r_{xy} = -0.112$ $p = 0.002$) and the long-stay wards ($r_{xy} = -0.204$ $p = 0.000$). An increase of the variability (s.d.), i.e. the presence of less and more experienced in the team on a given day was associated with a decrease in seclusions (Table 2 and 3).

Multivariate analyses

On the admission wards only the variables 'homogeneity / variability of work experience' and 'male-female staff ratio' persisted as significantly associated with seclusion in the logistic regression analysis. Variability of work experience was the most powerful predictor (OR = 0.871, 95% CI = 0.808 – 0.938; Wald = 13.129 df = 1 $p = 0.000$) followed by male-female staff ratio (OR = 0.75 95% CI = 0.589 – 0.955; Wald = 5.449 df = 1 $p = 0.020$).

On the long-stay wards male-female ratio, variability in work experience and the employment of mid-level vocational educated nurses were not excluded from the stepwise regression model. Of these the male-female staff ratio in the team was the most powerful predictor (OR = 0.353 95% CI = 0.220 – 0.567; Wald = 18.629 df = 1 p = 0.000) followed by team homogeneity / variability of work experience (OR = 0.778, 95% CI = 0.674 – 0.898; Wald = 11.702 df = 1 p = 0.001). The employment of mid-level vocational educated nurses predicted to some extent seclusion probability (OR = 0.02, 95% CI = 0.002 – 0.257; Wald = 9.003 df = 1 p = 0.003). On both types of wards more males and more variability on working experience is related to a decrease in seclusion. When we take the Odds ratios into account, these variables are more powerful predictors on the data of the long stay wards, than on the data of the admission wards. Only on the long-stay wards the employment of more mid-level vocational educated nurses decreases the likelihood of seclusion.

Discussion

This study shows that staff complement, staff composition according to gender and staff's variability in work experience are preconditions for the use of seclusion. In long-stay wards, seclusion was used more commonly when number of patient per staff was greater. In admission wards this was not detected. In both types of wards seclusion was used more likely if the number of female to male staff was greater. In admission wards, seclusion was not associated with staff education but in long-stay wards, seclusion was used more likely if less educated staff was present. Longer work experience of the present team was associated with less seclusion, and seclusion was less likely used if the team's working experience was not too homogenous, i.e. there were both more and less experienced nurses present. However, not all these associations persisted in multivariate analyses. In logistic regression analyses seclusion was in both ward types less likely if the male-female ratio of the staff was greater and the team's work experience had a greater variability. In long-stay wards, more seclusion was associated with presence of less educated staff. Use of seclusion may be attributed to inadequate staff complement and composition, however this study did not explore the causal direction of this attribution. Previous studies have not focused on differences between long term and admission wards in the associations of staff characteristics with seclusion.

Differences in staff complement on both wards could be attributed to directives from the Dutch government (Roosenschoon & Schuring, 1996, Wiggers, 1996), the hospital policy and the financial compensation for care (CTG, 2000) on both ward types. Consequence of these directives was that care for patients on admission wards provided a higher financial compensation for the hospitals than care

for patients on long-stay wards. This resulted in more patients for whom a single nurse is responsible on the long-stay wards than on the admission wards.

The value of number of patients per staff member as a key variable in the application of seclusion was depicted in this study. In our findings 'staff complement' differentiated between use of seclusion on long-stay wards in particular. However, when inputted in a regression model staff complement was not a predictor. These findings supported those of Mason & Alty, (1994) and Nijman, et al (1994). A ratio of too many patients per staff member led to overworked and demoralised nurses, unable to apply adequate interventions. This could lead to unnecessary continuation of inadequate and potentially dangerous patient behaviour (Way, et al. 1992). On the wards that participated in this study a small group of temporarily hired nurses were employed. The correlation found on the long-stay wards between the number of permanent staff, the number of temporarily hired nurses and the number of seclusions observed in this study was reasonably small, but this trend was similar to the findings of James, et al (1990). James, et al (1990) suggested that patients admitted to long-stay wards were less likely to exhibit potentially dangerous behaviour in the presence of permanent staff members. Also, based on their knowledge of and experience with the patients, permanent staff members may be expected to recognise certain behavioural characteristics in their patients at an early stage, and take necessary measures.

The greater the proportion of male staff, the less likely was seclusion in both admission and long-term wards. This could be due to aspects of attitude, safety, power and negotiation. Lendemeijer & Shortridge-Baggett, (1997) stated that risk assessment of a patient's behaviour not only concerned the individual nurses involved, but also the feeling of safety he or she derived from the presence of other staff members on duty. It was unclear whether feelings of safety or insecurity were related to the physical self-defence abilities of staff members. An exhibit of force (Gutheil, 1978) and the option to use coercive measures (Depp, 1983) by a male dominated team might command respect from the patient group but could also evoke more aggression (Morrison & Lehane, 1995). On the other hand female nurses negotiated longer with patients in order to achieve the desired behaviour (Morrison & Lehane, 1995) and, in so doing, gave the patient excess space in a situation in which firm and resolute action would be more effective. The findings in this study were in favour of a balance between male and female professionals on the staff. Further study should focus on aspects of personality and intra-personal skills attributing to gender.

In long-term wards, the presence of nurse's aides and student nurses in the teams increased the probability of seclusion. This supported the findings of Owen, et al (1998) which showed that more staff on duty lacking specific psychiatric training was related to involuntary detainment and seclusion of more patients exhibiting violence. In accordance with this, Klinge, (1994) found that higher

educated nurses tended to apply a minimal use of seclusion, in comparison to lower educated nurses. Klinge, (1994) studied the decision making process in the use of restraints and seclusion. How the decision making process in the nursing teams took place is beyond the scope of this study. Our finding that limited work experience was associated to the use of seclusion supported Wittington's, (1996) findings and might be explained by the interactions of very experienced nurses - experts and nurses with little or no work experience – novices (Benner, 1984). On the one hand, the longer nurses were employed in the same hospital or on the same ward, the more adequate they were at interpreting patient behaviour. Less experienced nurses, due to lack of background knowledge, had a more direct reaction to “introductory” behaviour as they were unable to foresee how the patient’s behaviour will develop (Benner, 1984). More seclusions might occur within a homogeneous team with a small variability (sd.) in years of work experience. Only Benner, (1984) provides some explanations. In the teams staffed with both more and less experienced nurses, the more experienced nurses shared their experiences with their less experienced colleagues. On the other hand the less experienced nurses were able to question and discuss the activities of the more experienced nurses from within their limited experiential framework and their reference of societal norms and values. These interactions ensured the continued astuteness of the nurses in a team and led to a more conscious choice for specific interventions, such as the use of seclusion. Also Benner, (1984) stated that teams only staffed with experienced nurses (homogeneous teams) functioned more within fixed group patterns. Our findings underlined the importance of a team’s variability of work experience.

Methodological considerations

Besides staffing levels, many other variables may influence on applying seclusion: patient characteristics such as mental disorder (Fisher, 1994), the prevailing ward culture (Lendemeijer & Shortridge- Baggett, 1997), or hospital characteristics such as architecture and hospital policy (Broers & de Lange, 1996). However important these variables might be they could not be addressed in the present study due to the retrospective register study design we used. Only data registered in specific data files in patient administrations, personnel and financial departments could be used in this study. Data of other factors potentially contributing to the use of seclusion, no matter how relevant, were not available. The retrospective data collection impaired interpretation of the results on the level of day-, evening- and night shifts as well as any verification of the information gathered by the ward staff.

Conclusion

The results of this study contribute to a more thorough comprehension of the influence of staff complement and composition on the application of seclusion in clinical psychiatry. The found relationship between staff complement and composition and the use of seclusion showed that staff complement and composition were preconditions for reducing the number of cases of seclusion particularly on the long-stay wards. Further research is necessary especially on the level of day-, evening- and night shifts perhaps compiled together with other factors related to the decision making process for the seclusion facilities.

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