

## ORIGINAL PAPER

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## Observation levels in acute psychiatric admissions

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**Abstract** It was our objective to compare the influence of patients' variables and circumstances of admission on the use of observation levels in acute psychiatric admissions in a British mental health unit. We performed a prospective case note survey of all acute psychiatric admissions during 28 consecutive days in June and July 1991 within a large teaching hospital and a traditional psychiatric hospital in Nottingham, England. We compared, the demographic characteristics of 88 consecutive admissions, admission procedures, clinical data, initial observation levels and changes in observation levels. As for the results, most patients were admitted outside of regular working hours (weekends or after 5 p.m.). Most patients were placed on intermediate (close) observation. The most important factor associated with the choice of observation level was the legal status of the patient ( $\chi^2 = 14.79$ ,  $df = 2$ ,  $p < 0.001$ , Fisher's exact test  $p < 0.0001$ ). There were significantly fewer incidents ( $\chi^2 = 7.72$ ,  $df = 2$ ,

$p < 0.05$ , Fisher's exact test  $p < 0.01$ ) on the highest (special) category of observation. The observation policy of the unit was not followed consistently. The number of factors contributing to the choice of observation levels reflects the complexity of the task facing the staff. Special observation is an effective method of managing acutely disturbed patients. The time of admission of most patients implies that more trained staff should be provided outside of regular hours. Clinical staff should be regularly trained in the use of observation procedures. It should be a regular topic in clinical audit.

**Key words** Dangerous behaviour · Hospital – patient relations · Psychiatric hospitals · Risk assessment · Suicide

### Introduction

The care of the mentally ill has become increasingly humane (Jones 1991). Physical restraint, locked wards and seclusion are now no longer the norm. Disturbed and violent patients are often managed on acute, open psychiatric wards. This has caused new problems and has necessitated innovation in the care of the disturbed, potentially dangerous patient. Particularly in inner cities where a high proportion of psychiatric patients are detained, there is often a concentration of severely disturbed and difficult-to-manage patients on the ward (Patrick et al. 1989).

Graded observation by nursing staff has been recommended for managing suicidal and aggressive behaviour on acute psychiatric wards (Phillips et al. 1977; Tardiff 1981; Blythe and Pearlmutter 1983; Thompson 1986; Goldberg 1987; Thompson 1987; Hogarty and Rodaitis 1988; Kingdon and Bakewell 1988; Shugar and Rehaluk 1990; Schipperheijn and Dunne 1991). Continuous observation provides the essential ingredients of reduced stimulation, protection, intensive assessment, and an opportunity for therapeutic contact. Its use forestalls and manages self-destructiveness, violence and over-stimulation of psychiatric inpatients (Moorhead et al. 1996).

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The Nottingham Healthcare Unit provides a sectorised service based on two sites, a psychiatric unit within a general teaching hospital (University Hospital, Nottingham) and a traditional psychiatric hospital (Mapperley Hospital). The Mental Health Unit operates a system of three grades of observation of all acute adult admissions to psychiatric wards allowing patients the least restriction of freedom compatible with safety:

1. Grade 1, general observation, allows patients maximum freedom within their treatment regimen.
2. Grade 2, close observation, applies to patients considered to be more at risk to themselves or others, and requires a named nurse to be aware of the individual's location at all times.
3. Grade 3, special observation, is reserved for those patients who are in immediate danger of harming themselves or others. Patients in this class must be observed at all times by a designated nurse in close proximity. The observing nurse should also provide appropriate psychological support and keep the patient occupied.

We examined how this policy is put into practice by carrying out a prospective case note survey. We studied the patients' characteristics, the circumstances of admission, and determined the factors that influence the level of observation assigned to newly admitted patients.

## Methods

We examined all acute admissions to the two psychiatric units covering the city of Nottingham over 4 weeks. Data recorded during the first 24 h of the patients' admission included; patients' demographic data including social status (Office of Population Censuses and Surveys 1991), past psychiatric and forensic history, history of violence on the ward and of self-harm, time and day of admission, whether the admission was planned and in regular hours or not, source of referral, legal status of the patient, number and grades of staff on duty at time of admission, level of observation the patient was initially placed on, who made the decision, and the reason given for the choice of observation level. The initial psychiatric diagnosis of each patient was taken from the case notes, and classified according to ICD-9 (World Health Organization 1978).

One week after admission, we recorded changes in observation levels and legal status, who decided these changes and for what reasons, total medication of major and minor tranquillisers expressed in chlorpromazine and diazepam equivalents (Davis 1976; Evans 1988; British Medical Association and Royal Pharmaceuti-

cal Society of Great Britain 1992), and staffing levels. When necessary, nursing and/or medical staff were interviewed in order to complete data collection.

Stepwise discriminant analysis was used to analyse the data with the three observation levels as dependent variables. We determined the relative contribution of several variables to the decision to apply one of the three observation grades. The identified factors were analysed by  $\chi^2$ -distribution and, where appropriate, by Fisher's exact test. Medication at different observation levels was subjected to analysis of variance.

## Results

Eighty-eight patients were admitted during the study period. For demographic data see Table 1.

The distribution of day and hour of admission is given in Figure 1. Fifty-five patients (62.5%) were admitted outside normal working hours, and 51 patients (58%) unplanned. Twenty-six (29.5%) patients were referred by their general practitioner and 15 (17%) by the Accident and Emergency Department. Thirty-three patients (37.5%) were receiving psychiatric care prior to admission.

Fifty-four patients were diagnosed initially as suffering from an affective psychosis (37 depressive, 10 manic, 7 unspecified or mixed), 22 from schizophrenia or schizo-affective psychosis, followed by neurotic disorders (12 patients), alcohol dependency (10 patients), personality disorders (9 patients), paranoid states, drug dependency and organic conditions (4 each). One patient was regarded as not suffering from a psychiatric disorder (numbers exceed 88 because more than one diagnosis per patient was possible).

Seventy patients (79.5%) were admitted voluntarily, 13 (14.8%) were detained under section 2 of the Mental Health Act 1983 (Department of Health and Social Security 1983), and 4 (4.5%) were detained under section 3. One patient was initially detained under a section 135 which was converted into a section 3<sup>1</sup>. Eleven (61.1%) of the detained patients were females.

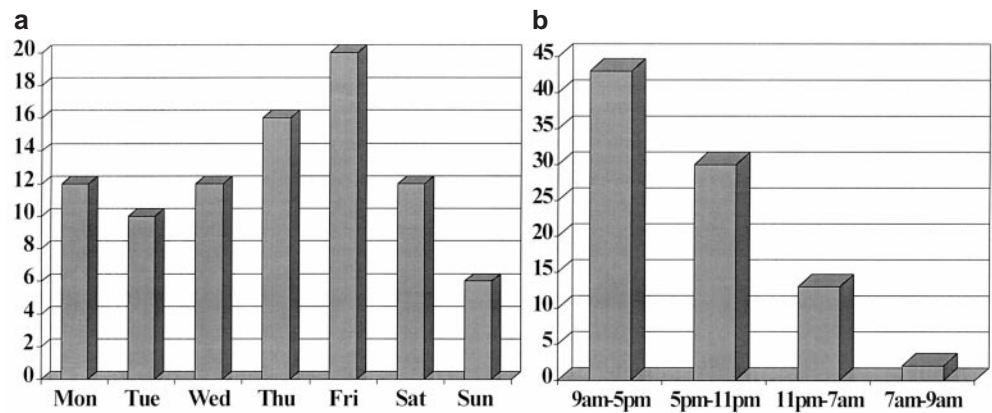
<sup>1</sup>Section 2 of the Mental Health Act 1983 (Department of Health and Social Security 1983) regulates detention of mentally disordered patients for assessment for 28 days, section 3 is an order which implies involuntary admission for treatment for up to 6 months, and section 135 regulates the warrant to search for and remove patients to a place of safety. It can be applied for by any approved social worker.

**Table 1** Demographic data of sample. *Cauc* Caucasian; *Afro-Carib* Afro-Caribbean; *Mstat* marital status; *mar* married or cohabiting; *div* divorced, separated or widowed; *SC* social class; *ue* unemployed; 1, 2, 4, 5 social class 1, 2, 4, 5; *3NM* social class 3 non-manual; *3M*

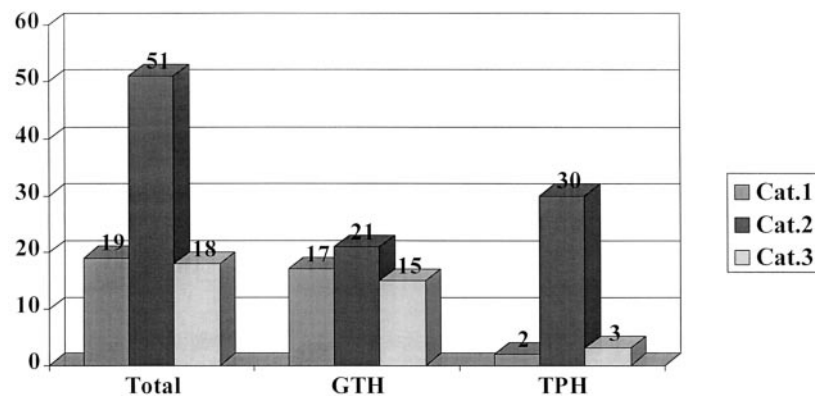
social class 3 manual; *ret* retired; *nd* no data; *Hx* history; *ppc* past psychiatric contact; *hsh* history of self-harm; *hvw* history of violence on psychiatric wards; *hvo* history of violence outside hospital not involving legal proceedings; *pfh* past forensic history

	No.	%
<i>N</i>	88	100
Gender (M/F)	37/51	42/58
Race (Cauc/Asian/Afro-Carib)	82/3/3	93.2/3.4/3.4
Mstat (single/mar/div)	37/32/19	42/36.4/21.6
Age (median)	40-44	
SC (ue/1/2/3NM/3M/4/5/ret/nd)	40/4/9/4/15/8/2/5/1	45.5/4.5/10.2/4.5/17/9.1/2.3/5.7/1.1
Hx (ppc, hsh, hvw, hvo, pfh)	70/26/6/23/11	79.5/29.5/6.8/26.1/12.5

**Fig. 1** **a** Day of admission;  
**b** time of admission



**Fig. 2** Observation categories on admission. (GTH = General teaching hospital; TPH = Traditional psychiatric hospital) ( $\chi^2 = 12.19$ ,  $df = 2$ ,  $p < 0.01$ , Fisher's exact test,  $p < 0.01$ )



For the distribution of categories on admission, see Fig. 2. Within the general teaching hospital more patients were placed on both levels 1 and 3 than in the traditional psychiatric hospital ( $\chi^2 = 12.19$ ,  $df = 2$ ,  $p < 0.01$ , Fisher's exact test,  $p < 0.01$ ). Most often, the decision on initial choice or change of observation levels was made by the junior doctor (Senior House Officer or registrar) alone (40 of 96 documented decisions, 41.7%). In 24 cases (25.0%) it was made by a team, either between staff nurse and junior doctor (11 cases, 11.5%), on occasion of a ward round (7 cases, 7.3%), between nursing staff and consultant (3 cases, 3.1%), or junior and senior (senior registrar or consultant) doctors (3 cases, 3.1%). In 5 cases (5.2%) the decision was made by nurses alone and in 5 by senior doctors alone (5.2%). In 22 cases (22.9%) there was no record as to who decided on the observation level.

The most frequent reason for placing a patient in category-1 observation was assessment (14, 66.7%). In 5 cases no reason was documented (23.8%). In 2 cases (9.5%) danger either to themselves or property was recorded for patients observed in category-1 observation.

The most frequently given reason for category-2 observation was assessment (46, 60.5%), followed by perceived danger to themselves (19, 25%). Risk of absconding (4, 5.3%), danger to staff (3, 3.9%) and danger to other patients and to property (2 each, 2.6%) were less frequently recorded.

For patients observed in category 3, the most frequent reason for observation was assessment (14, 46.7%), followed by perceived danger to themselves (7, 23.3%), dan-

ger to staff and other patients, and risk of absconding (three each, 10.0%).

Observation levels were changed for 49 patients (55.7%) during the first week. Forty-one patients (46.6%) were graded down, 3 (3.4%) up and 5 (5.7%) up and down. In 2 patients (2.3%) there was no record of change of observation.

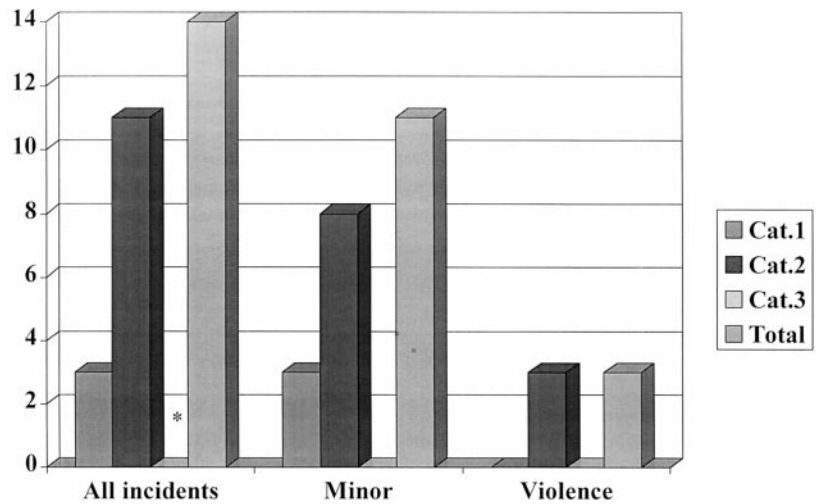
Figure 3 shows a comparison of untoward incidents during the first week of admission. No incidents were recorded in patients on category 3 ( $\chi^2 = 7.72$ ,  $df = 2$ ,  $p < 0.05$ , Fisher's exact test  $p < 0.01$ ).

There was no significant difference in the use of medication for either major or minor tranquillisers (see Fig. 4 for details.) An analysis of variance showed no significant differences due to high standard deviations.

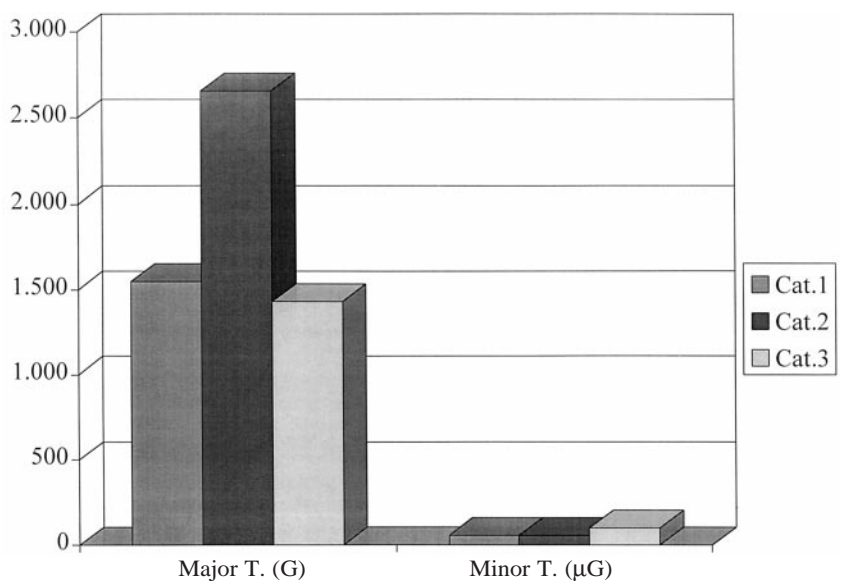
By stepwise discriminant analysis with the predicted outcome being levels 1 and 2 vs 3, 86.4% of cases could be correctly predicted. Legal status was identified as the most powerful factor associated with the choice of the initial observation level. Nine (50%) of the involuntary patients each were placed in either category-2 or -3 observation. Of the voluntary patients, 42 (60%) were nursed in category-2 and 9 (12.9%) in category-3 observation. The difference in observation levels of detained and voluntary patients was highly significant ( $\chi^2 = 14.79$ ,  $df = 2$ ,  $p < 0.001$ , Fisher's exact test  $p < 0.0001$ ).

The second most powerful variable identified was whether the patient was admitted outside normal working hours. There was no significant difference in the use of grade-3 observation between patients admitted outside

**Fig. 3** Untoward incidents.  
Asterisk:  $\chi^2 = 7.72$ ,  $df = 2$ ,  
 $p < 0.05$ , Fisher's exact test  
 $p < 0.01$



**Fig. 4** Medication and observation. *Major T (G)* major tranquilliser, gram; *Minor T ( $\mu$ G)* minor tranquilliser, microgram



regular hours (14 of 55, 25.5%) than other patients (4 of 33, 12.1%,  $\chi^2 = 2.26$ ,  $df = 2$ ,  $p = 0.32$ , Fisher's exact test,  $p = 0.35$ ). Other factors correlated with observational status were referral agency [patients referred by their general practitioner were nursed on lower levels of observation, 22 of 26 (84.6%) compared with the rest of patients, 63 of 89 (70.8%)  $\chi^2 = 8.97$ ,  $df = 2$ ,  $p < 0.05$ ] and marital status. Single patients were significantly more likely to be observed in grade 3 (13 of 37, 35.1%) than other patients (5 of 51, 9.8%;  $\chi^2 = 9.14$ ,  $df = 2$ ,  $p = 0.01$ ). The more qualified staff present, the less likely it was that patients were observed at level-3 observation (6 of 48, 12.5%, vs 12 of 40, 30%;  $\chi^2 = 7.36$ ,  $df = 2$ ,  $p < 0.05$ ). Staff sickness and diagnosis had no influence on the choice of observation level.

## Discussion

At a time when acute psychiatric units are concentrating increasingly on the management of severe mental distur-

bance, staffing management and methods of providing a safe environment for assessment and therapy of mental disorders and preventing untoward incidents are of primary importance for inpatient facilities (Bassett and Tsourtos 1993). Ward environment and staff management skills are important factors influencing disturbed behaviour on acute psychiatric wards (Levy and Hartocollis 1976; Bouras et al. 1982; Binder and McNiel 1988; Kingdon and Bakewell 1988; Flannery et al. 1998; Langenbach 1998). A properly used observation policy is generally viewed as a substantial contribution to the provision of a safer environment on the ward yielding protection and security for disturbed patients themselves, other patients and staff (Phillips et al. 1977; Goldberg 1987; Shugar and Rehaluk 1990).

We were surprised to find that the unit's policy was not followed consistently. Patients at risk of harming themselves or property were twice nursed at level 1 despite the policy stating that risk of patients endangering themselves or others should compel at least level-2 observation. Fifty



percent of the sectioned patients were nursed at level 2, although use of the Mental Health Act implies a higher degree of acute disturbance. We would thus have expected more patients at level three. Furthermore, 11 incidents with patients in category 2, including three assaults on staff, suggest that patients at risk had not been properly identified.

Our study confirms a finding from a previous study (Hodgson et al. 1993) that the unit staff's knowledge of the observation policy was variable. Variation in knowledge may also account for the significant differences in the use of observation levels between the two psychiatric sites. There may have been particular "sub-traditions" on single wards in interpretation and use of the policy, perhaps also contributing to the differences between the two hospitals. Thus, we may have to draw the conclusion that staff of the two units were not following their own policy, not keeping accurate records or not adequately assessing risks of patients. In this respect, our study may be used to question the finding by Hyde et al. (1992) that perceptions and views of staff provide valuable information.

Because subjective factors, such as staff knowledge and interpretation of the policy, and variability in the assessment of dangerousness, seem to be involved in the choice of observation levels, we were cautious about the interpretation of our results.

The legal status of patients was most strongly associated with their observational level. Circumstances of admission, source of referral, marital status of the patient, and number of qualified staff on the ward were also correlated to observation levels. Compared with Shugar and Rehaluk's (1990) retrospective study, we confirmed the importance of being involuntarily admitted with being placed on the highest level of observation, but not their finding that past history of self-harm or violence, social class, and sex were also influential factors. In our study, a history of self-harm or violence did not predict being given a higher level of observation. A possible explanation for this discrepancy may be that Shugar and Rehaluk (1990) studied a two-tier system of observation, whereas the Nottingham system of three different grades leads to patients at risk being observed also on an intermediate level if the risk is considered to be less acute. Three violent attacks on staff in the level-2 group, however, suggests some misidentification of dangerous patients with the effect of underestimation of danger. It is, however, also conceivable that a more intense level of observation does not necessarily lead to improved control of dangerous behaviour but may be perceived by the observed patient as interfering with a desired degree of personal freedom, and may thus provoke aggressive impulses.

It is interesting that diagnosis had no influence on the choice of observation levels. These findings are in contrast to the results of Phillips and co-workers (1977) who found diagnosis, prior admissions, facility with the English language and country of origin to correlate with being placed on continuous observation. However, they studied patients placed on continuous observation only, without using patients on different observation levels as a control

group. Since, in our study, diagnoses were taken from the notes without looking at them, their quality is not assessed. The lack of validity of the diagnoses may be a possible reason for the lack of an association with the choice of observational levels. The irrelevance of diagnosis in our study may, furthermore, indicate that the decision on observation levels is based on symptom rather than syndrome. The differences of average medication of benzodiazepines, although not significant, suggest differences in behaviour, independent of diagnosis, such as aggressiveness, threats of self-harm, etc. It has been suggested that patient's behaviour patterns are more indicative of ward incidents than diagnosis (Lee et al. 1989; Shugar and Rehaluk 1990). In a similar study done on elderly patients (Junaid et al. 1993), diagnosis was the most strongly associated factor identified for the choice of observation levels. A restricted set of behavioural patterns in old age may lead to a relative increase in importance of diagnosis in the choice of observation levels.

We observed that most patients were admitted after normal working hours; thus, most patients were admitted when fewer staff were on duty. It may be necessary to reconsider staffing levels and staff skill variation at different times. We have shown that trained staff's knowledge of the unit's observation policy was better than untrained staff's knowledge (Hodgson et al. 1993). Thus, apart from the need to provide more training on observation levels, it seems reasonable to have more trained staff available at night and on weekends. In contrast to a study by Phillips and co-workers (1977), we did not find a correlation between staff sickness and higher levels of patient observation. We found, however, that higher numbers of more experienced staff were associated with a decreased likelihood to nurse patients at level 3.

We have described the subjective experiences of staff involved in the decision process (Hodgson et al. 1993). Current behaviour of a patient is considered more important by nurses, whereas doctors place more emphasis in their assessment on mental state examination and previous history of patient. This difference may reflect particular weighing of factors in nurses' and doctors' training. A combination of doctors' and nurses' approach, as in decisions taken in a review or ward round, should prove beneficial for the decision of the appropriate observation level.

Individualized patient care planned on the basis of thorough evaluation of patient problems and needs (Meades 1989) should take into account that there are no scientific measures for dangerousness (Hamilton and Bullard 1990; Duggan 1997). The use of different observation grades can be viewed as part of an active, flexible management policy in order to protect patients and others from potential violent behaviour by adequate risk assessment (Ferris et al. 1997; Noak 1997; Duggan 1997; Doyle 1998; Fox 1998). According to Maden (1996), risk assessment in psychiatry is part of an ongoing process of risk management, involving treatment interventions and reassessments over a longer period. It must be said, however, and is also supported by our findings, that risk assessment is a very inexact science (Duggan 1997) which requires a bal-

ance between the number of false negatives and false positives in coercive supervision (Harrison 1997).

In view of our results, we make the following recommendations:

1. Mental Health units should develop more specific guidelines and training for the management and handling of disturbed patients.
2. Continuous training of all staff, including nursing and medical staff, is essential in improving adherence to policy.
3. The use of observation levels should be subjected to periodic audit.
4. Qualitative studies are needed in order to find out what particular criteria are involved in the complex process of assessing risk and deciding on observation levels. Questions to be answered include how many disturbed patients with what diagnoses are on the ward at the same time, whether knowledge of a patient's potential behaviour from previous admissions plays a role in deciding on observation levels, and whether there are differences in perceiving behaviour as especially dangerous or unpredictable by staff of different wards, and if so, what is the reason. The role of previous experiences of staff, special ward traditions, "myths", etc. should be explored. Single case studies may elicit more complex information and help generate new hypotheses about the decision process on observation levels. The results of such studies should be incorporated into the observation policy.

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