

BJPpsych

The British Journal of Psychiatry

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BJP 1994, 165:101-106.

Access the most recent version at DOI: [10.1192/bjp.165.1.101](https://doi.org/10.1192/bjp.165.1.101)

References

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Which Patients with Non-affective Functional Psychosis are not Admitted at First Psychiatric Contact?

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Background. We wished to explore the sociodemographic and clinical characteristics associated with admission to hospital in patients with a non-organic non-affective psychosis.

Method. Subjects were 484 first-contact patients with a non-affective functional psychosis from an inner-city catchment area over 20 years from the mid-1960s. Sociodemographic and clinical characteristics associated with admission to hospital were analysed.

Results. Around 20% of patients were not admitted, and the proportion did not change significantly over the years. Ethnicity, sex, and marital and employment status did not predict admission. Factors associated with admission included police involvement, and violence to self or others. A diagnosis of schizoaffective disorder, and persecutory delusions, auditory hallucinations, and bizarre behaviour were all more common in patients admitted to hospital.

Conclusions. The study indicates biases which might arise in research based exclusively on patients admitted to hospital.

Most research concerning the early stages of schizophrenia has been conducted on patients admitted to hospital. This practical approach is understandable, and can be partially justified by arguing that virtually all such patients are eventually admitted. There is frequently a significant delay, however, between onset of symptoms and hospital admission (Johnstone *et al*, 1986), and research in Nottingham (Cooper *et al*, 1987) has demonstrated that around 10% of people with schizophrenia are not admitted within two years of their first contact with the psychiatric services.

The proportion of patients not admitted to hospital at their first presentation has a direct bearing on research based exclusively on in-patients. Clearly, use in research of samples of schizophrenic patients in hospital produces bias towards more severely ill patients, and can lead to erroneous conclusions being drawn. Confining research only to patients in their first admission (excluding re-admissions) is methodologically more sound, yet bias arising from admission *per se* is not avoided. This issue has recently been highlighted by arguments over whether the incidence of schizophrenia is declining in a number of Western countries (see Der *et al*, 1990). Kendell *et al* (1993) have provided a comprehensive review of the difficulties inherent in attempting to determine trends in schizophrenia over time. Thus if the proportion of patients not admitted at first psychiatric contact has changed over the years, first-admission rates would not be a true reflection of underlying trends in the incidence of the disease. Indeed, several authorities have suggested that the reported decline in the first-admission rate for

schizophrenia is simply a consequence of a higher proportion of schizophrenics of recent onset being treated in the community than previously (Graham, 1990; Hafner & Gattaz, 1991).

A number of mental health teams have successfully managed to treat acute psychiatric disorders, including people presenting with psychosis for the first time, outside hospital (e.g. Muijen *et al*, 1992). With the widespread reduction in the UK in the number of psychiatric hospital beds and the subsequent development of community-based 'sectorised' mental health teams, it is likely that admission rates will be affected. It is important, then, to know the characteristics of psychotic individuals that influence admission policies. Such data are necessary for service planners, and have implications for researchers working exclusively with patients in hospital.

The aims of this study were:

- (a) to calculate the proportion of patients with non-affective, functional psychotic illness who were not admitted to hospital on first contact with the psychiatric services of an inner London borough
- (b) to determine trends in admission habits over two decades from the mid-1960s
- (c) to examine which sociodemographic and illness factors were likely to result in admission.

Method

This study is based on a first-contact sample of patients ascertained through the Camberwell

Cumulative Psychiatric Case Register. The Register documented all first-contact patients from the defined catchment area of Camberwell, in South London, over the years 1965–1984. Most patients were initially assessed at the Maudsley Hospital. The Maudsley is, in association with the Institute of Psychiatry, the largest postgraduate training centre for psychiatry in the UK. Thus most first-contact cases are seen initially by junior doctors. The hospital has a number of specialist referral units in addition to catchment area wards; this study was concerned solely with catchment area patients, precluding bias arising from tertiary referrals. The main change in service provision for catchment area patients between 1965 and 1984 has been a reduction in the number of sites for in-patient facilities. In the '60s and '70s a number of patients were admitted to affiliated hospitals, such as Cane Hill, in Surrey, while more recently almost all have been admitted to the Bethlem Royal Hospital or the Maudsley Hospital itself. Throughout this period there was little change in availability of alternatives to hospital admission for acutely ill psychotic patients. Specifically, there was no concerted move towards sectorisation of services or community care.

Case records of all patients on the Register in the following ICD-9 categories (World Health Organization, 1980) were included: 'schizophrenic psychosis' (ICD 295.0–295.9); 'paraphrenia' (ICD 297.2); and 'other non-organic psychosis' (ICD 298.1–298.9). Full details of the data collection procedures are described elsewhere (Castle *et al*, 1991). In short, two of the authors (DJC and SW) collected detailed demographic data on each patient, including:

- (a) ethnicity (white, Afro-Caribbean, African, Asian, and 'other') and country of birth (UK and Eire, West Indies, Africa, Asia, and 'other')
- (b) data on criminality (juvenile delinquency, adult convictions) were recorded from case records, and subsequently checks made through the Criminal Records Office, as described elsewhere (Wessely & Castle, 1992)
- (c) abuse of alcohol and cannabis (rater judgement)
- (d) police involvement in the referral or admission of the patient
- (e) violence to self or others before or during psychiatric assessment
- (f) whether the patient was admitted to hospital at first contact (defined as either admission at initial assessment, or later during the initial episode of illness).

In addition, the Operational Criteria Checklist for Psychotic Illness or OCCPI (McGuffin *et al*, 1991) was completed for each individual. The OCCPI is a phenomenological checklist, designed for completion from case records or written summaries, and which generates a wide range of operational definitions for functional psychoses through its allied computer program, OPCRIT. Inter-rater reliability was computed on a random set of 50 case records completed by both raters; $\kappa = 0.82$ for diagnoses based on Research Diagnostic Criteria (RDC) (Spitzer *et al*, 1978), and $\kappa = 0.76$ for DSM-III-R diagnoses (American Psychiatric Association, 1987).

Analyses were performed using the statistical package SPSS-PC; χ^2 analyses were used, with Yates' correction where appropriate, unless otherwise stated.

Results

There were 566 patients on the Register in the appropriate categories. Case records were available on 517 (91%). Of these, 25 were excluded from further analyses (15 were not first-contact patients, six had an obvious organic basis to their illness, and four did not receive a psychiatric diagnosis at first contact). For a further six patients, records were of insufficient quality to rate. There is no reason to suspect that the missing records introduced any systematic bias: most had been destroyed because of lack of storage space at one of the local hospitals, and those patients for whom notes were missing did not differ significantly from the rest in terms of gender, age at first contact, country of birth or register diagnosis. Thus, the final sample consisted of 484 patients (90%).

Trends over time and demographic variables

Trends in admission practices over time were assessed by determining the proportion of patients admitted to hospital at first psychiatric contact, by five-year date bands. The percentage of admitted patients was 79%, 82%, 77%, and 74% for the 1965–1969, 1970–1974, 1975–1979, and 1980–1984 date bands, respectively ($\chi^2 = 2.80$; d.f. = 3; $P = 0.42$).

Of patients born in the UK/Eire, 80% were admitted at first contact, compared with 75% of those born in the West Indies and 60% of those born in Asia; the differences were not significant, probably because of the small number of Asian-born. Comparison of ethnic whites with ethnic Afro-Caribbeans did not reveal any significant difference in proportion admitted (79% and 78% respectively). The following factors also failed to predict admission

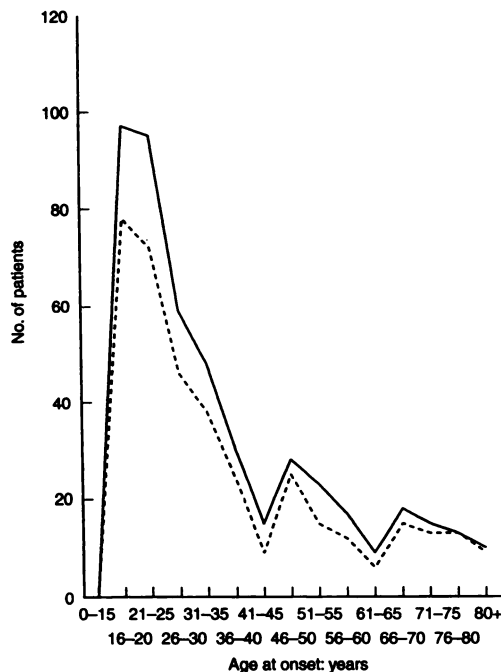


Fig. 1 Total number of patients, and number admitted at first contact, by age at onset. (—) All patients; (---) admitted patients.

to hospital: sex (males 77%, females 79%; $\chi^2 = 0.21$; d.f. = 1; $P = 0.64$); married/cohabiting status (married/cohabiting 79%; single 78%; $\chi^2 = 0.12$; d.f. = 1; $P = 0.80$); and being unemployed (unemployed 78%; employed 79%; $\chi^2 = 0.02$; d.f. = 1; $P = 0.89$).

Drug use, police involvement and violence

Patients with a history of problem drinking or alcohol dependence were less likely to be admitted

than those without such a history (71% v. 81%) but the difference was not significant ($\chi^2 = 2.38$; d.f. = 1; $P = 0.123$). A similar but significant trend was seen for patients with a history of cannabis abuse (65% v. 81%; $\chi^2 = 5.31$; d.f. = 1; $P = 0.021$).

A history of juvenile delinquency or adult criminality was slightly less common in patients admitted to hospital; again, differences were not significant. If police were involved in bringing the patient to hospital, however, there was a 93% chance of admission, compared with 79% if there was no such history ($\chi^2 = 5.69$; d.f. = 1; $P = 0.017$). Violence to others was likely to result in admission (91% v. 78%; Fisher's exact test, 1-tailed: $P = 0.05$), while all patients with a history of violence to self were admitted to hospital v. 80% of those with no such history ($\chi^2 = 5.40$; d.f. = 1; $P = 0.02$).

Clinical characteristics

The age at onset distribution of the sample is shown in Fig. 1; the proportion of admitted patients in each five-year age-at-onset band is also shown. Overall, age at onset did not predict whether the patient was admitted ($\chi^2 = 14.67$; d.f. = 13; $P = 0.327$).

Numbers of individuals fulfilling various RDC and DSM-III-R criteria for subtypes of functional psychosis are shown in Table 1, along with the proportions of patients admitted to hospital on first psychiatric contact. For both sets of criteria, the 'schizophrenia' category contained the largest number of individuals. In both RDC and DSM-III-R typology, it was patients with schizoaffective psychoses, although few in number, who had the greatest chance of being admitted to hospital. Patients with DSM-III-R 'delusional disorder' were least likely to be admitted.

Phenomenological variables

Phenomenological variables, as defined in OCCPI, were compared in patients admitted to hospital with

Table 1
Patients admitted to hospital, by diagnostic criteria fulfilled

RDC	Schizoaffective mania	Schizoaffective depressed	'Broad' schizophrenia	'Narrow' schizophrenia	'Other'
No. of patients	16	11	50	271	88
Percentage admitted	94	100	78	83	61
DSM-III-R	Schizoaffective disorder	Atypical psychosis	Schizophreniform psychosis	Schizophrenia	Delusional disorder
No. of patients	59	94	53	196	51
Percentage admitted	90	75	89	83	59

Table 2
Phenomenological variables of patients admitted

Variable	No. with symptom	% with admitted	% without admitted	χ^2	d.f.	P
Bizarre behaviour	215	86	73	10.11	1	0.001
Catatonia	27	89	78	1.16	1	0.280
Positive formal thought disorder	107	83	77	1.38	1	0.240
Negative formal thought disorder	41	88	79	1.25	1	0.133
Blunting of affect	10	80	79	0.00	1	1.000
Persecutory delusions	368	82	68	8.14	1	0.004
Organised (systematised) delusions	139	79	79	0.00	1	1.000
Grandiose delusions	102	87	77	4.94	1	0.026
Delusions of reference	297	88	76	0.64	1	0.422
Bizarre delusions	109	82	78	0.55	1	0.455
Widespread delusions	235	83	75	3.82	1	0.051
Passivity phenomena	123	81	78	0.51	1	0.474
Delusional perception	17	65	79	1.26	1	0.261
Other primary delusions	52	71	80	1.47	1	0.225
Persecutory hallucinations	279	86	68	22.99	1	<0.000
Thought insertion	61	72	80	1.33	1	0.186
Thought withdrawal	33	85	78	0.47	1	0.493
Thought broadcast	45	76	79	0.11	1	0.737
Thought echo	10	70	79	0.08	1	0.778
Third person hallucinations	157	84	76	3.74	1	0.053
Running commentary voices	81	88	77	4.01	1	0.045

those not admitted. Results are shown in Table 2. Persecutory and grandiose delusions, and any form of auditory hallucination, were more common in patients admitted to hospital. Bizarre behaviour also predicted admission.

Discussion

This study was based on first-contact patients, and assessed only the first episode of illness. Thus, we cannot address the fact that the manifestation of the illness in some of the patients might have changed with subsequent episodes; indeed, it has been suggested that a substantial proportion of psychotic patients attract different diagnoses at subsequent admissions (Munk-Jørgensen, 1985, for example). Our aim was to assess which features of illness predicted admission, rather than take any longitudinal view.

The study has the advantage of being based on the catchment area, but how far can the findings be generalised? The Camberwell catchment area is an inner-city area that rates highly on measures of deprivation based on factors such as housing tenure and socioeconomic status (Balarajan *et al*, 1992). The demography of the area changed considerably over the period under study. The total population declined from 171 000 in 1965 to 118 000 in 1984. There has also been an influx into the area of persons born in the Caribbean;

the proportion in the general population rose from 2.5% in the 1961 census to 6.6% in the 1981 census. There has been very little change in the age structure of the population, or in the male:female ratio. Authors studying different geographical areas could come to somewhat different conclusions from ours, although it is probable that variation in service provision (particularly alternatives to hospital admission) would be more pertinent in this regard.

Trends over time and demographic variables

Around 20% of patients with a non-affective psychosis were not admitted on first contact with the psychiatric services. This figure is remarkably similar to Shepherd *et al*, (1989), who reported that 20% of schizophrenic patients being admitted to hospital for the first time had had a previous episode of illness for which they had not been admitted. It is not possible, from our study, to tell what proportion of patients were subsequently admitted. A number of studies have found that a significant proportion of schizophrenic patients are never admitted to hospital. For example, Geddes and Kendell (1992) reported that around 8% of schizophrenic patients on the Lothian Psychiatric Case Register had never been admitted, while the Epidemiologic Catchment Area (ECA) study in North America (Keith *et al*, 1991) claimed that "40% of people with a life-time diagnosis of schizophrenia state that they have ever been admitted to a mental hospital" (p. 48). This

wide variation in reported rates is due, *inter alia*, to differences in case-finding methodology, and in diagnostic criteria used.

The proportion of admitted patients in our study did not change much over the years. Trends towards community psychiatric care (Prince & Phelan, 1990) as well as the wider use of depot neuroleptic medication (Graham, 1990) might have been expected to lead to a reduction in the number of patients requiring admission. Our findings probably reflect a relatively stable service provision. Thus, one can question how far our findings can be generalised, as there was no concerted move towards community care in the area in the period under study (see above). Tyrer *et al* (1989), however, found that, although the development of community psychiatry services can lead to a reduction in the total number of psychiatric admissions, the number of first admissions for schizophrenia remains fairly constant.

Our findings do not support the contention that a reported decline in the incidence of schizophrenia in a number of Western countries (Der *et al*, 1990; Murray *et al*, 1991) is an artefact due to changes in admission policies over time (Graham, 1990; Hafner & Gattaz, 1991). Of course, the findings reported here equally do not support the notion that there has been a decline in the incidence of schizophrenia; in fact, we have reported previously (Castle *et al*, 1991) that the incidence of schizophrenia in Camberwell rose over the period 1965–1984.

We have shown elsewhere (Castle *et al*, 1991; Wessely *et al*, 1991) that Afro-Caribbeans in Camberwell have a peculiar susceptibility to schizophrenia; around 20% of our schizophrenia sample were born in the Caribbean, four to six times the proportion in the general population of Camberwell over the period of the study. It has also been suggested (Dunn & Fahy, 1990) that black patients at the Maudsley are more likely than whites to be admitted compulsorily. It is perhaps surprising therefore that in this study, it was, if anything, white patients who showed a trend towards being admitted. This also serves as evidence against suggestions that the high proportion of Afro-Caribbeans in samples of schizophrenics in hospitals is merely due to admission bias.

Our figures suggest that Asian patients were less likely to be admitted. Although the findings were not statistically significant, the trend is in keeping with a previous report (Gupta, 1991) of a lower number and duration of admissions in Asian patients with psychosis, in comparison with their white counterparts.

The fact that gender, age at onset, and marital and employment status did not act as predictors of admission is also unexpected. Male schizophrenics

with disease of early onset tend to have a severe disorder (Castle & Murray, 1991) and one might have expected them to be more likely to be admitted. Furthermore, marriage is purported to have a 'protective' effect in schizophrenia, while employment would suggest a relatively high level of functioning in the community. Indeed, these findings are at odds with the experience of groups who have specifically focused on managing acutely ill psychiatric patients outside hospitals. For example, a home-based team in Birmingham (Dean & Gadd, 1990) found that being single and living alone both predicted admission, while being young predicted admission for male (but not female) patients.

Drug use, police involvement and violence

Past forensic history had no significant influence on admission, but police involvement in the process of referral was a predictor of admission, as was violence to others. This indicates that it is current behaviour that has the strongest influence on admission policy. The fact that all patients with a history of violence to self were admitted reflects safe psychiatric practice, and is a reassuring finding, as well as being a validation of the efficacy of psychiatric services over many years.

Illness factors

In terms of phenomenological variables, it was not Schneiderian 'first rank' symptoms of schizophrenia, such as passivity phenomena or thought interference, which were the strongest predictors of admission. Rather, the presence of persecutory delusions and any form of auditory hallucination were more common in those admitted to hospital. Bizarre behaviour was also a strong predictor of admission. This suggests that florid persecutory ideation and behavioural disturbance were more likely to influence admission practice than textbook 'typically schizophrenic' symptoms. This is underlined by the fact that patients with a diagnosis of schizoaffective disorder or DSM-III-R schizophreniform psychosis were most likely to be admitted. Patients with these conditions tend to have florid symptomatology and often exhibit disruptive behaviour. In contrast, less than two-thirds of patients with DSM-III-R delusional disorder were admitted. Typically, patients with this disorder exhibit non-bizarre delusions without prominent hallucinations, and are often not behaviourally disturbed (American Psychiatric Association, 1987).

The high probability of admission in patients with RDC schizodepression is due, in part at least, to the association with suicidal ideation; over 50% of this group were reported as having been actively suicidal, compared with only 10% of patients with schizophrenia.

Conclusions

The decision to admit a psychiatrically ill patient will depend, *inter alia*, on:

- (a) the mental state, and social characteristics of the patient
- (b) the past psychiatric history
- (c) the place and time that the initial assessment takes place
- (d) the availability of alternatives to hospital admission.

This paper concentrates on the first group of variables. Thus, patients presenting for the first time with a non-organic, non-affective functional psychosis were more likely to be admitted if:

- (a) there was police involvement, and/or violence to self or others
- (b) they met criteria for schizoaffective psychosis
- (c) they exhibited paranoid/grandiose delusions and auditory hallucinations
- (d) they were behaving bizarrely.

As such, the data provide an insight into some of the biases that might arise from using samples from hospitals in research into the functional psychoses. This knowledge is important for accurate conclusions to be drawn from studies exclusively of patients in hospital. For example, our data suggest that the association between violence and schizophrenia would be exaggerated in such samples. On the other hand, some true findings might simply be dismissed as due to admission bias. In this context, we might have expected that Afro-Caribbeans would be more likely to be admitted than whites, and the fact that this was not so supports the notion that previous findings of an excess of Afro-Caribbeans among in-patients with schizophrenia is not explicable on the basis of admission bias.

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(First received December 1992, final revision May 1993, accepted July 1993)