Nithsdale, Nunhead and Norwood: similarities and differences in prevalence of schizophrenia and utilisation of services in rural and urban areas

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Background The prevalence of schizophrenia is known to be greater in urban than in rural areas. Less studied are differences between the patients themselves and, more specifically, their use of psychiatric services.

Method The prevalence of schizophrenia was determined in rural Nithsdale in Scotland and urban Nunhead and Norwood in South London. Information about patients' psychiatric history, use of services during the study year and global assessment of functioning were obtained from case records and staff.

Results There were no significant differences in prevalence rates between Nithsdale patients, all White (2.78 per 1000 general population), Nunhead (3.46 per 1000) and Norwood (2.24 per 1000) Whites; rates were significantly higher among the non-Whites in Nunhead (7.36 per 1000) and Norwood (5.53 per 1000), who were mainly Black Caribbeans. Nithsdale patients were at a higher level of functioning and made substantially more use of psychiatric services. During the study year, 42% of Nithsdale patients used more than one of three principal community services, namely day, out-patient and community psychiatric nursing care.

Conclusions The prevalence of schizophrenia is no different in rural Nithsdale and inner-city Nunhead and Norwood, when only White patients are considered. Nithsdale patients were at a higher level of functioning and made more use of available psychiatric services.

Overall prevalence rates of mental disorder do not appear to be different between urban and rural areas (Robins *et al*, 1991). However, it is well known that the incidence and prevalence of schizophrenia is greater in urban than in rural areas (reviewed by Freeman, 1994). Less studied, however, are differences there might be between the patients themselves. More specifically, does urban patients' use of psychiatric services differ from that of their rural counterparts, and are there differences in level of functioning?

We report what we believe is the first comparison in Britain of service utilisation by schizophrenic patients from a rural and an urban area. The method of identification of patients in both areas is similar, as is the assessment of services used.

METHOD

Nithsdale in south-west Scotland has an area of 500 square miles and a population of 57 000. It is largely rural. Unemployment is about 7%. In 1991 the Jarman index of deprivation was +1.14 (Information and Statistics Division, National Health Service in Scotland, personal communication) and the 1991 census showed that 99.5% of inhabitants were White. Psychiatric services include in-patient care at Crichton Royal Hospital, out-patient clinics in a district general hospital and two health centres, day hospital care and a community workshop, and a community psychiatric nursing service (12 nurses).

The Nunhead and Norwood sectors in South London had an estimated 1991 population of 80 000. The 1991 Jarman score was +30.1; the unemployment rate is 18% (Jarman, 1983; 1984). Non-White ethnic groups comprise about 22% of the Camberwell population. At the time of this case-identification study, between 1991 and 1992, services to the Nunhead and Norwood sectors were largely hospital-based, provided by the Maudsley and Royal Bethlem hospitals. Patients received services variously from 15 different in-patient teams, two day hospitals provided long-term support to patients disabled by long-term mental illness, and three community psychiatric nurses provided home treatment. Crisis response was provided by an Emergency Clinic.

Table 1 shows the gender and age structure of the three districts. Nithsdale and Nunhead and Norwood Whites are similar in gender and age structure. Nunhead and Norwood non-Whites are much younger, only 6 and 7%, respectively, are aged 60 years or over.

Identification of patients

In Nithsdale, regular censuses of all known schizophrenic patients have taken place since 1981 (McCreadie, 1982). Hospital records identify on a given date all in-patients, day patients, out-patients and patients supported by community psychiatric nurses. Regular questionnaires to all general practitioners in Nithsdale identify schizophrenic patients known to them but not to the hospital services.

In Nunhead and Norwood, possible cases were identified using the protocol developed for the World Health Organization Determinants of Outcome Study (Sartorius *et al*, 1986). This was used at a wide range of local agencies, including health (primary and secondary) services, social services, housing departments, voluntary providers and user and carer groups.

Patients included were those with a clinical ICD–9 diagnosis of schizophrenia (World Health Organization, 1978) and who were either in contact with psychiatric services during the survey year (1 July 1992 to 30 June 1993 in Nithsdale and 1 April 1991 to 31 March 1992 in Nunhead and Norwood) or, if not in contact, were known to be receiving antipsychotic medication from their general practitioner. A patient was in contact if he or she at some point during the year was an in-patient, day patient or out-patient, or was supervised by a community psychiatric nurse.

Assessment

The case records for each patient were obtained and all medical, nursing, social work and occupational therapy notes scrutinised, as well as all correspondence and accessory information. Using the case records, the Operational Criteria Checklist for Psychotic Illness (OCCPI; McGuffin *et al*, 1991) was completed for all patients. The

https://doi.org/10.1192/bjp.170.1.31 Published online by Cambridge University Press

Table 1 Population, gender and age structure

Age (years)	Nithsdale		Nunhead				Norwood			
			White		Non-White		White		Non-White	
	Male (%) (*n*=28 173)	Female (%) (*n*=29 658)	Male (%) (*n*=14 140)	Female (%) (*n*=15 308)	Male (%) (*n*=4918)	Female (%) (*n*=5267)	Male (%) (*n*=15 838)	Female (%) (*n*=17 169)	Male (%) (*n*=4784)	Female (%) (*n*=5348)
<15	22	18	16	14	28	26	16	14	32	28
15–44	40	40	51	47	50	54	52	47	49	54
45–59	19	18	14	13	14	14	14	14	12	11
⩾60	19	24	19	26	8	6	18	25	7	7

Nithsdale population based on 1993 general practice registrations; Nunhead and Norwood populations based on 1991 census figures, adjusted to take account of under-enumeration (Leese *et al*, 1995).

computer programme OPCRIT was used to analyse the OCCPI data.

Other social, demographic and clinical information, and the patient's use of psychiatric services during the year of the survey were recorded on the current (1992) PRiSM Case Identification Forms A and B (available from PRiSM, Institute of Psychiatry, London). The information was obtained from case records and, where possible, through discussion with the patient's consultant psychiatrist and community psychiatric nurse.

Analysis

Overall differences in proportions were assessed using the χ^2 test. Analysis of variance was used for continuous variables, with Bonferroni adjustments (using P=0.05) for pairwise differences referred to in the text. Ranges of values refer to the range of means for the five groups (see below) unless otherwise stated. All the main findings were confirmed using logistic regression or analysis of covariance, controlling for age and gender. Rate ratios are given with Nithsdale as the reference group. No allowance has been made for lack of independence among comparisons presented (e.g. those for 15–44 age groups and for the all-age groups).

RESULTS

Social and demographic information

The survey identified 161 patients in Nithsdale, 177 in Nunhead and 130 in Norwood. All patients in Nithsdale were White. Fifty-eight per cent of patients in Nunhead and 57% in Norwood were White; three-quarters of the remainder in both districts were Black Caribbeans. The following results consider all Nithsdale patients, and separately the White and non-White patients in Nunhead and Norwood; that is, there are five groups. All three groups of White patients were significantly older than the two non-White groups (mean age 44–46 *v.* 32–35 years). There were no significant intergroup differences in the following characteristics:

(1) gender distribution: percentage of males ranged from 50 to 64%;

(2) marital status: the percentage of those having never married ranged from 62 to 77%;

(3) number of offspring: the mean number ranged from 0.6 to 1.1;

(4) domiciliary status: 32–51% lived alone, 9–19% lived with a spouse or as a couple;

(5) academic qualifications achieved: 56–70% left school with no formal qualifications;

(6) employment status: 70–87% were not in gainful employment.

Prevalence of schizophrenia

Table 2 lists prevalence rates for Nithsdale patients, and for Nunhead and Norwood White and non-White patients using three criteria: the clinical ICD–9 diagnosis, and the OPCRIT-derived DSM–III–R and ICD–10 diagnoses. Rate ratios are also listed, with Nithsdale as the reference group.

All ages, male and female

There were no significant differences in prevalence rates between Nithsdale and Nunhead and Norwood for White patients on any of the three diagnostic criteria, with the exception of Nunhead Whites on ICD–10. On all three criteria, rates in Nunhead and Norwood non-Whites were significantly higher than in Nithsdale patients.

Males aged 15–44 and females aged 15–44

As Nunhead and Norwood non-Whites in the general population were younger than Nithsdale residents and Nunhead and Norwood Whites, prevalence rates were calculated for those aged 15–44, separately for males and females (Table 2). Again, there were no significant differences between Nithsdale and Nunhead and Norwood for White patients on any criteria, except that according to ICD–10 Norwood Whites had a lower prevalence. Prevalence rates remained significantly higher in Nunhead and Norwood non-Whites.

Utilisation of services

Psychiatric and forensic history (Table 3)

Nithsdale patients had had more lifetime admissions to psychiatric in-patient care, fewer had ever been in prison and more had been categorised as requiring no supervision as their highest ever living accommodation. Nunhead and Norwood non-Whites had a shorter psychiatric history, more had a history of violence and more had at some time been compulsorily detained in hospital. Norwood non-Whites had a greater mean number of admissions per year (0.8 *v.* 0.4–0.5). There were no significant differences in the number who had ever been on criminal charges (range 21–38%) or the number who had ever been in a psychiatric state hospital (range 0–7%). Men were more likely to be living in supported accommodation (men 24%, women 15%; P=0.015); more had a history of previous violence (men 59%,

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Table 2 Prevalence rates per 1000 population, and rate ratios

	Clinical diagnosis			DSM-III-R diagnosis			ICD-10 diagnosis		
	Rate	Rate ratio	95% confidence interval	Rate	Rate ratio	95% confidence interval	Rate	Rate ratio	95% confidence interval
All ages, male & female									
Nithsdale	2.78			2.40			2.40		
Nunhead White	3.46	1.24	0.97–1.59	2.28	0.95	0.71–1.27	3.29	1.37	1.06–1.77*
Nunhead non-White	7.36	2.65	2.00–3.46*	4.61	1.92	1.38–2.00*	6.58	2.74	2.04–3.56*
Norwood White	2.24	0.81	0.61–1.06	1.88	0.78	0.58–1.05	1.91	0.79	0.59–1.07
Norwood non-White	5.53	1.99	1.46–2.69*	4.34	1.81	1.29–2.53*	4.84	2.01	1.45–2.78*
Age 15–44, male									
Nithsdale	5.20			4.39			4.66		
Nunhead White	4.42	0.85	0.55–1.31	3.17	0.72	0.44–1.19	3.86	1.01	0.65–1.55
Nunhead non-White	14.97	2.88	1.91–4.34*	8.90	2.03	1.22–3.35*	10.92	2.69	1.73–4.19*
Norwood White	3.41	0.66	0.42–1.03	2.68	0.61	0.37–1.01	1.82	0.58	0.35–0.94*
Norwood non-White	10.60	2.04	1.28–3.25*	8.05	1.83	1.08–3.11*	8.05	2.00	1.22–3.29*
Age 15–44, female									
Nithsdale	2.25			1.92			2.08		
Nunhead White	2.21	0.98	0.53–1.82	1.52	0.79	0.39–1.62	1.52	1.02	0.55–190
Nunhead non-White	8.01	3.56	2.04–6.20*	5.57	2.90	1.54–5.50*	5.57	3.37	1.89–5.99*
Norwood White	1.73	0.77	0.40–1.46	1.98	1.03	0.54–1.95	1.36	0.91	0.49–1.70
Norwood non-White	7.65	3.40	1.94–5.96*	5.22	2.72	1.42–5.21*	4.52	2.88	1.59–5.26*

Rate ratios calculated using Nithsdale as the reference group. Where confidence interval does not include 1, a difference significant at the $P<0.05$ level is indicated (*).

women 38%; $P<0.001$) and of imprisonment (men 28%, women 13%; $P<0.001$).

Contact with services during survey year (Tables 4 & 5)

Table 4 shows that more Nithsdale patients were in contact with psychiatric services both at the beginning and at the end of the survey year. Twelve per cent of Nithsdale patients, but no Nunhead or Norwood patients, were long-stay in-patients. However, 4–19% of Nunhead and Norwood patients were in other forms of residential care. More Nithsdale patients attended as day patients and had contact with a community psychiatric nurse, but fewer had a key worker, were seen as an out-patient, or were assessed at home by a consultant or non-consultant psychiatrist. More of the Nunhead and Norwood non-White patients had been in-patients during the year. Table 5 shows patients' use of more than one of the three principal community services, namely day patient, out-patient and community psychiatric nursing care. Nithsdale patients made greater use of such services, with 42% using more than one service, and 15.3% using all three. There were no between-gender differences in patterns of service use.

Medication and ECT

There were no intergroup differences in the percentage of subjects receiving oral antipsychotic medication (48–65%), intramuscular antipsychotic medication (42–60%), both oral and intramuscular antipsychotic medication (12–19%), anticholinergic medication (24–30%), benzodiazepines (0–10%), clozapine (0–1%), or ECT (0–3%). In Nithsdale there were no 'depot clinics'; most patients receiving intramuscular antipsychotic medication were medicated at home by a community psychiatric nurse. In Nunhead and Norwood 45–70% of those receiving intramuscular drugs at that time attended either a depot clinic or the ward.

Global Assessment of Functioning

Patients were rated using the Global Assessment of Functioning (GAF) scale (American Psychiatric Association, 1987), according to which a higher score indicates less impairment. There was a significant intergroup difference (analysis of variance: $F=9.9$, $P<0.0001$), with higher mean scores in the Nithsdale patients (64) than in the Nunhead (51) and Norwood (58) patients; the Bonferroni test showed the difference between Nithsdale and Nunhead (but not Norwood) to be significant at $P=0.05$.

DISCUSSION

Prevalence rates

We found no significant differences in prevalence rates between White patients in rural Nithsdale and in urban Nunhead and Norwood. The most likely reason for the lack of difference is that there may have been no drift of schizophrenic patients towards these particular inner-city areas; such drift may have occurred elsewhere. The point prevalence of clinically diagnosed schizophrenia in Camden, North London, which contains three major rail termini, was found to be 9.81 per 1000 in South and 5.62 per 1000 in North Camden (Campbell *et al*, 1990). The higher prevalence rate of schizophrenia among the non-Whites (mainly

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Table 3 Psychiatric and forensic history

History variable	Nithsdale (*n*=161) mean (s.d.)	Nunhead		Norwood		Significance[1]	
		(*n*=102) mean (s.d.)	(*n*=75) mean (s.d.)	(*n*=74) mean (s.d.)	(*n*=56) mean (s.d.)	*F*	*P*
Years since first contact	20 (14)	21 (13)	12 (8)	20 (14)	9 (8)	14.8	<0.0001
Lifetime number of admissions	7.5 (7.6)	4.6 (3.8)	4.4 (3.7)	4.3 (3.8)	4.0 (3.5)	8.3	<0.0001
Admissions per year	0.5 (0.5)	0.4 (0.4)	0.5 (0.4)	0.4 (0.4)	0.8 (0.8)	6.8	<0.0001
	n (%)[2]	*n* (%)[2]	*n* (%)[2]	*n* (%)[2]	*n* (%)[2]	χ^2	*P*
Highest living accommodation							
No supervision	140 (89)	64 (75)	42 (63)	52 (78)	38 (73)	22.0	0.0002
Alone in lodgings	2 (1)	1 (1)	1 (1)	1 (1)	1 (2)		
Supervised hostel		6 (7)	6 (9)	1 (1)	1 (2)		
Never independent	15 (10)	14 (17)	18 (27)	13 (20)	12 (23)		
Not known	4	17	8	7	4		
History of violence							
No	95 (59)	51 (59)	15 (22)	37 (61)	24 (50)	31.0	<0.0001
Yes	66 (41)	36 (41)	53 (78)	24 (39)	24 (50)		
Not known		15	7	13	8		
Ever in prison							
No	147 (92)	69 (75)	52 (73)	60 (83)	42 (76)	18.8	0.0009
Yes	13 (8)	23 (25)	19 (27)	12 (17)	13 (24)		
Not known	1	10	4	2	1		
Ever on section							
No	78 (49)	35 (43)	12 (18)	23 (43)	11 (23)	24.9	<0.0001
Yes	81 (51)	46 (57)	54 (82)	31 (57)	37 (77)		
Not known	2	21	9	20	8		

1. Between groups, non-missing cases only; assumes random missing values.
2. Percentage of patients for whom information was available.

Black Caribbeans) in Nunhead and Norwood has long been known and the possible reasons for it exhaustively discussed (for a review see Leff, 1988).

Use of services

The patients in rural Nithsdale made substantially greater use of available psychiatric services than those in urban Nunhead and Norwood. There are several possible explanations for this finding. First, the schizophrenic population might have been 'sicker'. However, the Nithsdale patients' GAF scores were in fact higher than those of the urban patients, suggesting they were at a better level of functioning. Second, the Nithsdale patients might have made greater use of services because of greater service availability. This certainly explains the presence of long-stay in-patients in Nithsdale; such National Health Service beds are no longer available in Nunhead and Norwood where 4–19% of patients were in other forms of residential care. Also, Nithsdale had 12 community psychiatric nurses (0.2 per 1000 of the general population) compared with three in the London sectors (0.02 per 1000). However, there were fewer places at the day hospital in Nithsdale, 35 (0.6 per 1000 of the general population) compared with 125 in the two London sites (1.51 per 1000). A third possibility is that psychiatric services in Nithsdale were more successful in maintaining contact with schizophrenic patients in the community. This hypothesis is supported by the fact that all Nithsdale patients were in contact with services both at the beginning and at the end of the survey year, whereas in Nunhead and Norwood 16–45% were not in contact at the start, and 13–41% were out of contact at the end of the survey year.

Perhaps the greater contact of patients with psychiatric services in Nithsdale contributed to the fact that a significantly lower number of the rural patients had ever been in prison. More non-White patients had a history of violence and more had been sectioned at some time (Davies *et al*, 1996). These forensic differences between Whites and non-Whites have been described previously (Dunn & Fahy, 1990; Lloyd & Moodley, 1992).

The use of medication and ECT was broadly similar in rural and urban patients. The greater contact of community psychiatric nurses with patients in Nithsdale is no doubt the reason why more patients received their long-acting intramuscular antipsychotic

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Table 4 Contact with services during survey year

Contact variable	Nithsdale		Nunhead				Norwood				Significance	
			White		Non-White		White		Non-White		χ^2	*P*
	(*n*=161)		(*n*=102)		(*n*=75)		(*n*=74)		(*n*=56)			
	n	(%)[1]	*n*	(%)[1]	*n*	(%)[1]	*n*	(%)[1]	*n*	(%)[1]		
In contact at start of year												
No	19	(12)	17	(20)	11	(16)	20	(27)	24	(45)	30.6	<0.0001
Yes	142	(88)	70	(80)	57	(84)	53	(73)	29	(55)		
Not known			15		7		1		3			
In contact at end of year												
No	17	(11)	18	(21)	8	(12)	20	(29)	22	(41)	29.9	<0.0001
Yes	142	(89)	67	(79)	58	(88)	48	(71)	32	(59)		
Not known	2		17		9		6		2			
In-patient during year												
No	105	(65)	75	(75)	42	(56)	55	(77)	27	(48)	17.6	0.001
Yes	56	(35)	26	(25)	33	(44)	17	(23)	29	(52)		
Not known			1									
Out-patient during year												
No	62	(39)	22	(24)	10	(14)	21	(28)	13	(23)	17.3	0.001
Yes	97	(61)	70	(76)	60	(86)	53	(72)	43	(77)		
Not known	2		10		5							
Day patient during year												
No	93	(59)	61	(61)	54	(74)	58	(82)	48	(87)	26.1	<0.0001
Yes	66	(41)	40	(39)	19	(26)	13	(18)	7	(13)		
Not known	2		1		2		3		1			
Keyworker identified												
No	149	(93)	52	(67)	39	(66)	45	(75)	42	(84)	34.9	<0.0001
Yes	11	(7)	26	(33)	20	(34)	15	(25)	8	(16)		
Not known	1		24		16		14		6			
Consultant domiciliary visit												
No	151	(95)	76	(76)	54	(73)	53	(73)	38	(70)	32.0	<0.0001
Yes	8	(5)	24	(24)	20	(77)	20	(27)	16	(30)		
Not known	2		2		1		1		2			
Non-consultant domiciliary visit												
No	122	(94)	78	(80)	53	(79)	58	(84)	42	(86)	12.4	0.01
Yes	8	(6)	20	(20)	14	(21)	11	(16)	7	(14)		
Not known	2		4		8		5		7			
Community psychiatric nurse contact												
No	59	(37)	81	(81)	56	(76)	45	(67)	33	(65)		
Yes	100	(63)	20	(19)	18	(24)	22	(33)	18	(35)	61.6	<0.0001
Not known	2		1		1		7		5			

1. Percentage of patients for whom information was available.

https://doi.org/10.1192/bjp.170.1.31 Published online by Cambridge University Press

Table 5 Combined use of community services in the study year

Use of service[1]	Nunhead (%)	Norwood (%)	Nithsdale (%)
CD	1.9	0.9	7.6
CO	6.9	12.0	12.7
DO	15.0	8.5	6.4
CDO	3.1	1.7	15.3
Total	26.9	23.1	42

1. All categories of service use are mutually exclusive. Key: C, community psychiatric nursing service; O, out-patient service; D, day patient service.

medication at home, whereas most of the urban patients attended a depot clinic. ECT and clozapine were rarely prescribed. More than a quarter of both urban and rural patients were receiving anti-Parkinsonian medication; the value of such medication has long been questioned (Mindham *et al*, 1972).

The present study has highlighted the different patterns of care of schizophrenic patients in a rural and an urban setting. The next step is to assess the needs of the individual patients and relate these to the availability of services; such a study is already underway.

CLINICAL IMPLICATIONS

- The prevalence of schizophrenia was as high in a rural area as in the White population of an inner-city area.
- Rural patients made more use of psychiatric services.
- Rural patients were at a higher level of functioning.

LIMITATIONS

- The rural and urban areas studied may not be representative of all such areas.
- Since the present survey was completed a greater range of community mental health services has been introduced into the urban area studied.
- The present survey focused more on health than on social services.

ACKNOWLEDGEMENT

We thank Mrs Doris Stirling for secretarial assistance.

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(First received 20 December 1995, final revision 20 June 1996, accepted 26 June 1996)

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