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The Nithsdale Schizophrenia Survey: I. Psychiatric and Social Handicaps

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Summary: A review of all known schizophrenics from a discrete geographical area, Nithsdale in Dumfries and Galloway Region, found a point prevalence of 2.38 per 1000 of the total population; this figure fell to 1.73 when only Feighner positive schizophrenics were considered. Only 3 per cent of the population interviewed had no abnormality in mental state or behaviour; negative schizophrenic symptoms were prominent, positive symptoms uncommon. Approximately one quarter were in-patients, who were an atypical group, showing much more obvious social and psychiatric disability. In- and day patient care and state benefits for schizophrenics cost each member of the Nithsdale community approximately £12 a year.

A generation of schizophrenics has grown up since the introduction in the 1950s of neuroleptics and community care, and in the past decade they have been exposed to long-term maintenance anti-psychotic drugs. However, there have been very few community studies describing the impact of these developments. A recent detailed description of schizophrenic in-patients (Owens and Johnstone, 1980) showed many such patients continuing to have multiple social and clinical handicaps, while a review of patients in the community (Cheadle *et al*, 1978) found such handicaps were moderately severe. No recent study in the United Kingdom, however, has identified all schizophrenics from a discrete geographical area and described their handicaps. The present study has attempted this.

Method

Area

Nithsdale, an historically ancient and geographically discrete part of Dumfries and Galloway Region, has an area of 550 square miles and a population of 56,000 (General Registrar Office, Scotland, 1981). It is largely rural, but contains the market town of Dumfries (population 31,000) and three other small towns along the banks of the River Nith. Psychiatric services are provided by Crichton Royal Hospital. It is probable that very few patients from Nithsdale receive treatment elsewhere, especially as the Crichton has had amenity beds for many years and the two nearest psychiatric hospitals are 35 and 60 miles from Dumfries.

Patient identification

Patients included in the survey were all the in-patients, day patients, and out-patients of Crichton Royal Hospital who, on 1 March 1981, had a firm case record diagnosis of schizophrenia and whose home address was in Nithsdale. All general practitioners (n = 32) in Nithsdale were sent a list of schizophrenics in their practice currently in contact with the Crichton. They were asked if there were any other schizophrenics known to the practice and receiving treatment. The Feighner criteria for schizophrenia (Feighner *et al*, 1972) were then applied to each patient, using information obtained from the case record and the clinical assessment (see below).

The following demographic, social, financial and clinical information was recorded: age, sex, marital status, number of children, place of birth, domiciliary and employment status, value of all financial benefits (including free prescriptions, if any), length of illness (as estimated from first hospital admission), length of total in-patient stay and current medication.

Assessment

Over the four weeks following the census date the mental state of patients was assessed by the author using the Manchester Scale for chronic psychotics (Krawiecka *et al*, 1977); a 10 per cent sample was assessed independently by a second psychiatrist to estimate inter-rater agreement. In-patient and day patient behaviour was assessed by senior nurses using the Wing Ward Behaviour Scale (Wing, 1961); the behaviour at home of patients living with relatives was

assessed by community nurses through interviews with the relatives, also using the Wing Scale, with minor modifications. Parkinsonism and tardive dyskinesia were assessed using the Targeting Abnormal Kinetic Effects scale (TAKE) and the Abnormal Involuntary Movements Scale (AIMS) (Wojcik *et al*, 1980; US Department of Health, Education and Welfare, 1976); results of these assessments are reported separately (McCreadie *et al*, 1982a) as is an assessment of handedness (McCreadie *et al*, 1982b), determined by a series of tests (Annett, 1970).

Statistics

Differences between groups were tested by the chi-square test (two-tailed tests throughout).

Results

The study identified 133 schizophrenics, of whom 38 were in-patients (28 per cent), 23 day patients (17 per cent) and 42 out-patients (32 per cent). All general practitioners replied to the questionnaire. This identified a further 30 patients (23 per cent) of whom all except one had had contact with Crichton Royal at some time in the past. The figures gave a point prevalence of 2.38 per 1000 of the total population. When the Feighner criteria were applied, there were 97 'definite' or 'probable' schizophrenics, a point prevalence of 1.73 per 1000.

Three general practitioners refused access to eight patients but supplied some demographic and social information. A further seven patients attending only their general practitioner refused to be assessed clinically.

Demographic and social findings

Fifty-two per cent of probands were male, 48 per cent female; their mean age was 48 years, range 20 to 94 years. Half had been born in Nithsdale, a further 11 per cent in other parts of Dumfries and Galloway Region, 23 per cent elsewhere in Scotland. Seventy-eight per cent were from the town of Dumfries, where 55 per cent of the general population of Nithsdale lives. Fifty-nine per cent were single, 22 per cent married, 14 per cent divorced or separated and 5 per cent widowed; this compares with 40 per cent single, 51 per cent married and 9 per cent widowed, divorced or separated for the general population of Dumfriesshire aged over 16 years (General Registrar Office, Scotland, 1971). Sixty-eight per cent had no offspring.

The following information excludes in-patients. Twenty-five per cent lived with their spouse, 30 per cent with parents and 27 per cent alone. Seventy-five per cent (68 per cent of males) were unemployed, compared with 12 per cent (13 per cent of males) of the general population in Dumfries and Galloway Region (personal communication, Employment Service Agency); 18 per cent of this group attended the hospital's industrial or occupational therapy department.

Financial findings

Ninety-five per cent of in-patients were receiving state benefits (mainly non-contributory invalidity payments), the average weekly value of which was £7.50. Seventy per cent of other patients were also receiving benefits (invalidity, unemployment or supplementary benefit or retirement pension), the average value of which was £31.80. Thirty-eight per cent of non-in-patients received free prescriptions and a further 14 per cent had a prescription 'season ticket'. The assessed cost of in-patient care at Crichton Royal at the time of the survey was £182 per patient per week (Dumfries and Galloway Health Board, 1981). This is a slight overestimate as the figure of £182 includes the cost of running the day hospital and the salaries and very considerable travelling expenses of community nurses, two of whom work mainly in Nithsdale with chronic schizophrenics. It is likely that the cost of day care is not far short of the cost of in-patient care. When only the cost of in- and day patient care and state benefits are considered, then, with 56,000 people in Nithsdale, the cost of caring for schizophrenics is approximately £12 per year to each member of the Nithsdale community. Taxes and national insurance and pension contributions paid by the small number of schizophrenics in open employment will slightly offset this cost.

Clinical findings

The mean length of illness was 18 years, the median 14 years (range two months to 60 years), the mean total length of in-patient stay eight years and the median one year (range one week to 60 years). Twenty-four per cent of patients were receiving no anti-psychotic medication; 30 per cent were receiving oral, 31 per cent intra-muscular and 15 per cent both oral and intra-muscular neuroleptics. Thirty-two per cent were receiving anti-parkinsonian medication and 25 per cent other psychotropic drugs, mainly benzodiazepines (15 per cent) or anti-depressants (9 per cent).

Mental state

The mental state of all in-patients, day patients and out-patients and of 50 per cent of the general practice patients was assessed (n = 118, i.e., 89 per cent of the total group). The nine items on the Manchester Scale assess four positive schizophrenic symptoms (incongruity of affect, delusions, hallucinations and incoherence of speech), two negative schizophrenic

symptoms (flattening of affect, poverty of speech) and three non-schizophrenic symptoms (depression, anxiety and retardation), each on a five-point scale (0 = absent to 4 = severe). Affect was separated in the present study into 'incongruous' and 'flat'. Inter-rater agreement, complete or partial (a difference of one point), ranged from 91 to 100 per cent on eight items; it was 73 per cent on the ninth, incoherence of speech.

In 18 per cent of patients there was no abnormality in the mental state. Table I lists the symptoms in order of prevalence. The negative symptoms were most prominent, the positive least. Almost half the patients showed flatness of affect while less than 15 per cent exhibited hallucinations, incoherence of speech or incongruity of affect.

Behaviour

The behaviour of all in-patients and day patients, 74 per cent of out-patients, and 13 per cent of general practice patients (n = 96, 72 per cent of total group) was assessed.

The Wing Behaviour Scale assesses behaviour in the previous week. In 21 per cent of patients no abnormality was detected. Table II lists the symptoms in order of prevalence. Social withdrawal, lack of leisure interests and limited conversation were found in about half of the patients. Socially embarrassing behaviour such as threatening behaviour or overactivity was uncommon.

Only 3 per cent of patients whose mental state and behaviour were both examined had no abnormality on either assessment.

Differences between groups

Various groups were compared on the basis of demographic, social and clinical findings. Unless specified, differences stated below were significant at least at the 1 per cent level.

TABLE I

Mental state: Prevalence of symptoms

Symptom	Percentage of patients showing symptom
Flatness of affect	45
Retardation	33
Poverty of speech	29
Anxiety	28
Delusions	26
Depression	23
Incoherence of speech	14
Hallucinations	10
Incongruity of affect	8

TABLE II

Behaviour: Prevalence of abnormalities

Behaviour	Percentage of patients showing abnormality
Social withdrawal	61
Leisure interests	50
Conversation	48
Slowness of movement	33
Underactivity	30
Personal appearance	24
Laughing and talking to self	12
Posturing and mannerisms	9
Threatening or violent behaviour	8
Overactivity	7
Behaviour at meal times	3
Personal hygiene	2

Feighner positive versus negative schizophrenics

Feighner positive schizophrenics ('definite' or 'probable') were older ($P < 0.05$), more of them were single, fewer had children, and more were unemployed. They had been ill longer ($P < 0.02$) and had spent a longer total time as in-patients.

Male versus female

More males were single ($P < 0.05$), more lived with their parents and fewer were unemployed ($P < 0.02$).

In-patients versus other groups

More in-patients had been born in Dumfries and Galloway Region ($P < 0.05$), they were older, more were single, fewer had children and more were unemployed. In-patients had been ill longer ($P < 0.02$) and had a longer total in-patient stay. More were on both oral and intra-muscular neuroleptics ($P < 0.02$). Flattening of affect ($P < 0.02$), poverty of speech and retardation of movement ($P < 0.02$) were more common in in-patients and ordinary conversation, social mixing, spontaneous interests and pride in personal appearance were less common.

Out-patients versus general practice patients

Out-patients had had a longer total in-patient stay than general practice patients and more of them exhibited flatness of affect and retardation ($P < 0.05$).

Discussion

The point prevalence which we found, 2.38 per 1000 of the total population, lies between the 1.98 found in 1974 in Camberwell, and the 2.77 found in Salford (Wing and Fryers, 1976). The Camberwell and Salford prevalence figures were obtained from case registers and did not include patients attending only their

general practitioners. When Feighner positive schizophrenics only are considered, the prevalence in Nithsdale falls to 1.73. The Nithsdale figure must be an underestimate, as inevitably some schizophrenics have nothing to do with their general practitioner but continue to have symptoms. However, there are likely to be fewer such patients in Nithsdale than in urban areas, as it is a heavily doctored district where practitioners are very much part of the community in which they live. The results will also be affected by some schizophrenics having drifted away from Nithsdale to such cities as Glasgow and Edinburgh; indeed, there seems to have been a drift from rural Nithsdale to Dumfries.

The application of the Feighner criteria distinguish two groups of patients, who differ mainly in age and length of illness. However, there are no differences between the groups on the basis of the patients' mental state or behaviour. The Feighner criteria tend to identify chronic patients (Overall and Hollister, 1979) as a main requirement is that a patient must have had symptoms for at least six months without a return to the premorbid level of psychological adjustment.

Approximately one quarter of schizophrenics in our survey were in-patients; this contrasts with both Camberwell and Salford, where in 1974 about two-thirds were in-patients. No doubt the shift to community care over the past seven years would now produce different figures in both these urban areas.

Although almost three-quarters of the schizophrenics were living out of hospital, social and psychiatric disability was still considerable. When compared with the general population fewer had married, and among those who had more marriages had ended in separation or divorce. The vast majority were unemployed. Only 3 per cent of schizophrenics examined had no abnormality in either mental state or behaviour. Psychiatric disability, however, was 'quiet'. Flattening of affect and social withdrawal were most prominent; florid positive symptoms and embarrassing behaviour were uncommon. The latter symptoms are effectively controlled by neuroleptics (Crow, 1980); the former are much more difficult to manage.

The finding that most schizophrenics are likely to be out of hospital means that the burden of their care has been transferred to the community. In many instances the 'community' is the patient's family, and the stresses produced by the schizophrenic living at home have already been well documented (Creer and Wing, 1974). To relieve the burden on the family and to give support to patients living on their own—day care is offered to all Nithsdale schizophrenics without employment, but distances and problems with transport in a rural area dictate that only those living in or around Dumfries can reasonably be expected to attend. A subgroup likely to need considerable support in the future are those currently living with ageing parents; indeed, males in this category form 15 per cent of the total schizophrenic population.

The most striking differences found were between in-patients and other groups. The former were older, had been ill longer and in terms of both mental state and behaviour were more disabled. Studies which nowadays confine themselves to in-patients are likely, therefore, to be examining a small and atypical group of schizophrenics. The number of patients examined who were attending only their general practitioner was small and, perhaps, not typical of the group as some refused to be interviewed. However, those who were assessed were less disabled than out-patients, a finding reported in another study (Leff and Vaughn, 1972). In Nithsdale this probably reflects willingness among general practitioners to care for less seriously disabled schizophrenics.

Although the majority of schizophrenics in Nithsdale are no longer living in hospital, the financial cost is still considerable. Such costs are extremely hard to estimate (Cheadle and Morgan, 1974), but when only readily identifiable costs were taken into account, £12 per person per year was the approximate cost to the Nithsdale community of caring for schizophrenics. If these findings are typical throughout the United Kingdom (which admittedly is highly speculative) then the cost of caring for schizophrenics nationwide must be approximately £650–700 m per year.

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