Mental Illness in Dublin—First Admissions

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This paper reports a study of first admissions to psychiatric facilities in Dublin. It forms part of a survey whose objects were to investigate the extent and characteristics of hospitalized psychiatric illness in Dublin, to make comparisons between mental illness in Dublin and in other cities, to observe the outcome of a first-admitted cohort of patients followed up for five years and to examine the differences, on admission and in outcome, between those receiving Local Authority and those receiving private care.

The limitations of hospital data as measures of incidence of psychiatric illness are well recognized (Plunkett and Gordon, 1960). Nevertheless, hospital figures, as Ödegaard (1962) has pointed out, do have value in studies of severe psychiatric illness. As far as Dublin is concerned, however, the presentation of hospital data can be justified by the fact that this had not been done before, and also by the fact that community studies have not so far been feasible.

METHOD

This study is an account of first admissions in 1962 to all Local Authority and private in-patient psychiatric facilities in Dublin City and County of all persons ordinarily resident in this area, which had, in 1961, a population of 720,000. In practice it did not prove feasible to obtain data from some of the smaller private facilities, so that the account that follows is of 91·8 per cent. of all first admissions to the Dublin psychiatric facilities during 1962.

Because an individual patient reporting system was not in operation in 1962, the author designed an individual patient card, comprehensive enough to gather the basic medical, social and demographic data, yet simple enough to enable the clinical psychiatrist to complete it in ten minutes. In the case of the Local Authority facilities the author was personally able to supervise the survey procedure himself and personally examined every first admission during 1962. Card completion and return was expected within a week of admission, but where diagnostic indecision prevailed further time was always allowed for completion. Information on the patient cards was transferred to punch cards for sorting and analysis.

RESULTS

There were 1,427 first admissions, of whom 690 were male and 737 female, giving a crude first admission rate of 254 per 100,000 aged 10 and over for both sexes; 271 for males and 241 for females. The marital status of the sample is given in Table I.

The crude rates are very similar for all categories except widowed males, whose rate is almost twice that of all other groups. This difference, however, is considerably reduced when the rates are age-standardized. It is then found that the spouseless male, whether widowed or single, has a rate almost twice that of his married counterpart. For females after age standardization, the widowed emerge with the lowest rate, merely half that of the single female.

Table II sets out the age structure of the sample in numbers and in crude and standardized rates. For both sexes crude and standardized rates rise directly with age; more rapidly for males up to age 40. Male rates exceed female at all ages.

Residential status has been set out by the Dublin postal districts in a manner previously employed in a study of suicide in the same area (McCarthy and Walsh, 1966). Dublin 1 and 2 and parts of Dublin 7 and 8 represent the old, central, decaying city area; Dublin 5, 10, 11 and 12 contain for the most part Corporation housing estates, and Dublin 3, 4, 6, 14 and

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TABLE I

Marital Status—Numbers and Crude and Standardized Rates per 100,000 of Population Aged 10 and Over

	Males			
	Married	Single	Widowed	Total
Numbers	319	328	43	690
Crude Rates/100,000 population aged 10 and over	262	263	498	
Age Standardized Rates/100,000 population aged 10 and over	203	361	402	

	Females			
	Married	Single	Widowed	Total
Numbers	331	328	78	737
Rates/100,000 population aged 10 and over	264	261	252	
Age Standardized Rates/100,000 population aged 10 and over	214	296	165	

Indirect standardization on basis of age-specific rates by sex and the age distribution of the population in each marital status. Indirect standardization has been performed extensively to adjust marital statuses for their different age compositions and age groups for their different marital status compositions. As an illustration of the application of this method of standardization, the adjustment of the 1st admissions rate for married women may be considered. First, the age specific rates for all women were multiplied by the number of married women in each corresponding age group and these products were summed to yield an expected number of married, female first admissions. This expected total was then divided by the actual number of married women first admissions recorded. The quotient was then multiplied by the rate for all women to obtain the age standardized rate for married females. (Cf. Peter R. Cox, *Demography*, Third edn., Cambridge, 1966, pp. 123–124).

TABLE II

Age Distribution—Numbers and Crude and Standardized Rates per 100,000 Population Aged 10 and Over

	Males								
	0–9	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80+
Numbers	4	66	109	130	125	97	88	46	25
Crude Rates/100,000 population aged 10 and over	5	103	244	316	332	305	414	420	824
Rates/100,000 population aged 10 and over stand. for marital status	5	106	271	326	339	305	385	356	616

	Females								
	0–9	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80+
Numbers	1	39	114	136	128	119	93	71	36
Crude Rates/100,000 population aged 10 and over	1	58	214	279	282	313	322	390	573
Rates/100,000 population aged 10 and over stand. for marital status	1	54	196	256	259	290	299	364	540

Indirect standardization based on the marital status specific rates by sex and the marital status distribution of the population in each age-group.

TABLE III
Crude and Standardized Rates per 100,000 Population Aged 10 and Over by Residential Area

Dublin	Crude rate		Age standardized		Marital status standardized	
	Male	Female	Male	Female	Male	Female
1	297	205	299	201	299	191
2	365	355	343	302	364	331
3	212	151	198	148	202	140
4	438	366	420	346	434	365
5	155	210	166	226	157	201
6	168	193	171	191	169	174
7	221	215	219	215	216	200
8	228	162	244	163	244	147
9	322	299	318	235	326	221
10	163	176	188	217	167	160
11	122	280	135	131	126	116
12	284	253	319	283	202	235
14	272	270	271	277	287	249
Blackrock and Dunlaoghaire	309	268	300	253	308	249
Co. Dublin	145	141	145	144	303	130

Indirect standardization based on age and marital status specific rates and the age and marital status distribution of the area populations, respectively. Rates per 100,000 population aged 10 and over.

Dunlaoghaire and Blackrock are primarily private residential areas, some of them long settled. It can be seen from Table III that the Corporation housing estate areas, recently settled and working class, present the lowest rates, crude and standardized, whilst central city areas Dublin 1 and 2 have relatively high rates and Dublin 4, perhaps in socio-economic terms the most affluent of all Dublin areas, presents the highest rates. Dunlaoghaire and Blackrock, also middle class and residential,

follows this trend by showing high rates. Dublin county has the lowest of all rates.

In the diagnostic classification five major groupings were employed.

(1) Neurosis: comprising anxiety, phobic, obsessional and reactive depressive states and dissociative and conversion reactions.

(2) Psychosis: comprising schizophrenia (including paraphrenia, paranoid and schizo-affective states), manic-depressive psychosis (including involutional depression) and other and unspecified psychotic reactions.

TABLE IV
Numbers and Crude Rates by Diagnosis per 100,000 Population Aged 10 and Over

Male	Neurosis	Psychosis	Organic disorder	Personality disorder	Mental subnormality	Total
Numbers	70	281	121	191	27	690
Crude Rates/100,000 population aged 10 and over	27	110	47	75	11	

Female	Neurosis	Psychosis	Organic disorder	Personality disorder	Mental subnormality	Total
Numbers	121	422	111	62	21	737
Crude Rates/100,000 population aged 10 and over	40	138	36	20	7	

(3) Organic Syndromes: including pre-senile, senile and arteriosclerotic psychoses, symptomatic psychoses, acute and chronic brain syndromes and the psychotic disorders of epilepsy.

(4) Personality disorders: including psychopathic personality, alcoholism and drug dependence and sexual deviation.

(5) Mental subnormality.

In Table IV the sample is set out by these five major diagnostic groupings. For both sexes the psychotic group is by far the largest, and for females accounts for over 55 per cent. of all first admissions: it is over three times greater than the next highest group, namely, neurosis. For males there is a very high rate for personality disorder, almost four times that of the female. Primary mental subnormality is, in both sexes, the smallest single diagnostic group.

In Table V rates for specific disorders are set out. From this it is evident that the predominance of psychotic disorder among female first admissions is largely due to manic-depressive psychosis, and that of personality disorders among males to alcoholism (alcoholism and alcoholic psychosis). There is little variation between the sexes for the senile and arteriosclerotic psychoses. Schizophrenia (including paraphrenic, paranoid and schizo-affective states) is somewhat higher among males.

The marital status, in numbers and rates, of the major diagnostic groupings is presented in

TABLE V

Rates by Specific Disorders per 100,000 Population Aged 10 and Over

		Schizophrenia	Manic-depressive psychosis	Senile-arterio-sclerotic	Alcoholism
Male ..	..	57	53	34	57
Female	..	46	87	33	10

TABLE VI

Diagnosis by Marital Status. Rates per 100,000 Population Aged 10 and Over with Numbers in Brackets

Male	Married	Single	Widowed
Neurosis	30 (36)	26 (33)	12 (1)
Rates/100,000 population 10 and over age standardized	23	34	14
Psychosis			
Schizophrenia	23 (28)	89 (111)	58 (5)
Rates/100,000 population 10 and over age standardized	22	90	82
Manic-Depressive Psychosis	58 (71)	45 (56)	104 (9)
Rates/100,000 population 10 and over age standardized	42	77	66
Organic	48 (58)	28 (35)	324 (28)
Personality	103 (106)	53 (63)	83 (7)
Mental Subnormality	0 (0)	22 (27)	0 (0)
Female			
Neurosis	48 (60)	32 (48)	42 (13)
Rates/100,000 population 10 and over age standardized	38	38	42
Psychosis			
Schizophrenia	40 (50)	56 (83)	16 (5)
Rates/100,000 population 10 and over age standardized	27	68	16
Manic-Depressive Psychosis	113 (157)	69 (104)	45 (14)
Rates/100,000 population 10 and over age standardized	91	99	32
Organic	19 (24)	29 (43)	142 (44)
Personality	25 (25)	20 (30)	3 (1)
Mental Subnormality	0 (0)	13 (47)	3 (1)

Table VI. The most striking feature is the exceedingly high rate of organic conditions in the widowed, particularly the male widowed. In both sexes the single rate for schizophrenia is higher than the married, but is particularly so in the male, where the difference is four-fold. It is remarkable that widowed males have a relatively high rate for schizophrenia. Crude manic-depressive rates are higher for the married female than the single or widowed, but age-standardized rates are very similar. In the male manic-depressive rates, a widowed excess gives way to single predominance on age standardization.

Three major diagnoses are broken down by age and sex in Table VII. For neurosis it is seen that female rates are greater at practically all ages. Apart from the extremes of age, there is a fairly constant representation of neurosis throughout the age groups. Schizophrenic male rates are greater than female rates at almost all age groups and much greater up to age 30. Although there is a lowering of schizophrenic rates in both sexes over age 50, yet there are quite appreciable first admission rates up to, and even over, age 80. For manic-depressive psychosis female rates exceed male rates except at the beginning and end of the age scale, and in both sexes rates continue to rise to age 70 before declining.

Table VIII sets out rates by residential area for the two major psychoses. For schizophrenia, Dublin area 1 and 2 present the highest rates, followed by Dublin 4, Dublin 7 and Blackrock and Dunlaoghaire. At the other end of the scale, Dublin 11, County Dublin and Dublin 10 had the lowest rates. For manic-depressive psychosis, rates were highest in Dublin 4, Dublin 2 and Blackrock and Dunlaoghaire and lowest in Dublin 11, Dublin 10 and Dublin 1.

DISCUSSION

It has already been pointed out that Irish hospitalized psychiatric morbidity is the highest on record, whether the measure used is of hospital treated rate, hospital point prevalence

TABLE VII

Numbers and Rates per 100,000 Population Aged 10 and Over Age and Sex Distribution for Three Diagnoses

		10–19	20–29	30–39	40–49	50–59	60–69	70–79	80+
Neurosis									
Numbers	Male	7	13	14	16	13	5	2	0
	Female	10	27	21	22	25	13	3	0
Crude Rates	Male	11	29	34	42	41	23	18	0
	Female	15	51	43	48	68	62	16	0
Marital Status Standardized Rates	Male	11	28	32	39	39	23	20	0
	Female	19	66	40	44	61	43	16	0
Schizophrenia									
Numbers	Male	24	40	35	21	9	12	3	1
	Female	7	26	40	35	24	11	6	1
Crude Rates	Male	37	90	85	56	28	57	27	36
	Female	10	49	80	77	65	51	33	16
Marital Status Standardized Rates	Male	23	72	118	89	45	83	35	40
	Female	8	44	84	81	70	47	46	26
Manic-depressive									
Numbers	Male	6	15	26	27	30	21	10	1
	Female	5	36	52	54	56	49	13	0
Crude Rates	Male	9	34	63	72	94	99	91	36
	Female	7	67	107	119	151	217	71	0
Marital Status Standardized Rates	Male	11	36	61	67	87	86	72	24
	Female	9	68	94	105	140	186	93	0

TABLE VIII

Schizophrenia and Manic-Depressive Psychosis. Rates per 100,000 Population Aged 10 and Over by Residential Area

Area		Schizophrenia	Manic-depressive
Dublin	1	66	19
	2	88	105
	3	19	55
	4	52	115
	5	21	40
	6	32	47
	7	48	42
	8	34	29
	9	43	92
	10	19	15
	11	15	3
	12	36	56
	14	26	69
Blackrock and Dunlaoghaire		43	93
County Dublin		17	27

rate, or first admission rate (Walsh and Walsh, 1967). These rates show considerable regional variation within Ireland, and are lowest in the Dublin area. The present study shows Dublin to have an overall first admission rate of 214·8 per 100,000 of total population. Although this is for Ireland a low first admission rate, it is in international terms exceedingly high; most of the few higher rates in the literature are from underprivileged migrant groups. Thus, Malzberg (1956a) found a first admission rate of 239·3 per 100,000 population among Puerto Ricans in New York and of 302·7 per 100,000 population among migrant Negroes in New York State (Malzberg, 1956b). However, the city of Helsinki had, in 1960, a first admission rate for all diagnoses of 353 per 100,000 population aged 15 and over (Stenback and Achte, 1964). This high first admission rate for the Dublin area is in keeping with other studies of first admission rates among the Irish, whether in Ireland (Walsh and Walsh, 1967) or in the United States (Malzberg, 1940). It may be of interest to compute disease expectancy along the lines employed by the study of Norris (1959), although the concept is open to criticism. Disease expectancy is generally calculated on the basis of first admissions in a particular year, and used to estimate "how many persons out of,

say, 1,000 births are likely to develop a mental disease during their lifetime" (Norris, 1959). This projection of age-specific rates as recorded in a particular year over the life of a cohort of 1,000 births would be justified only if the age-specific rates in the area remained stable for an extended period of time, an assumption that is apparently never warranted. The concept of disease expectancy may be used, however, to project the implications of current first admission rates for the probability of ever being admitted to a hospital, provided it is realized that this projection may be rendered irrelevant by changes in the incidence of mental illness over time, or by changes in the nosocomial factors that determine the hospitalization associated with a given incidence.

Given this proviso, the expectancy of admission may be calculated approximately by summing the admission rates for each year of life or for each year of the period of risk (in which case the expectancy reflects the probability of admission among survivors to the end of the period of risk) or by finding the sum of the product of the admission rate in a year and the probability of survival from birth to that year (in which case the expectancy reflects the probability of admission among births in the area). Both methods are approximate, since

they fail to exclude the joint probability of being a "first admission" in more than one year of life. This qualification has generally been ignored because its statistical impact is slight, and in view of the general caution with which the expectancy figures should be used, it seems trivial.

Thus, in application to the present data, the expectancy of being admitted on at least one occasion to a psychiatric facility for all male Dubliners surviving to age 50 is 10·0 per cent., of those surviving to age 60 it is 13·1 per cent. and to age 80 21·4 per cent. For female survivors the expectancies are 8·3 per cent. to age 50, 11·5 per cent. to age 60 and 18·6 per cent. to age 80. Likewise, of every 100 males born in Dublin 10 will be admitted at least once to a psychiatric institution by age 50, 13 by age 60 and 17 by age 80. For females the corresponding figures are 8, 11, and 16.

This study has found first admission rates to rise directly with age, and this is in keeping with experience elsewhere (Norris, 1959; Pugh and MacMahon, 1962). The very rapid increase from age 70 onwards for both sexes and the much higher rates for males up to age 30 are in agreement with general experience. When the age structure of first admission rates for specific conditions is examined, it becomes clear that up to age 30 male schizophrenic rates are much higher than female, and it is evident that it is this influence on total first admission rates which increases male morbidity in early life. Again this is a fairly universal finding in studies of this kind. Manic-depressive psychosis maintains a 2–1 ratio of female to male rates at all ages between 20 and 70. This sex-ratio of inception rates is usual (Sjögren, 1948), but the period of appreciable risk is wider than in other studies (Ödegaard, 1946). For neurosis there is the expected excess of female over male rates at all ages. Unexpected, however, are the high rates at age 40 and over, so that between ages 40–60 the female rate for neurosis exceeds that for schizophrenia. In this context it is noteworthy that recent United States data show a substantial increase in psychoneurotic first admission rates (Duvall, Locke and Kramer, 1966).

The standardized rates for marital status show the widowed male to have the highest rate of all and the widowed female the lowest. Generally, widowed rates are intermediate between married and single rates. Usually, too, male widowed rates are higher than female widowed rates. In the present study this trend is accentuated. The single rates are, predictably, higher than the married rates, and, again predictably, the male rates are greater than the female. These figures emphasize that the selective influence of marriage is apparent in Dublin, where marriage rates are well below the European norm (Leser, 1965). However, it is important to point out that the high rates for the widowed after age standardization indicate that, particularly for males, spouselessness rather than celibacy may be associated with increased liability to first admission, including first admission for schizophrenia. Separate rates for the separated and divorced could not be compiled, as these categories are not returned in the Irish Census. When individual diagnoses are considered, the large excess of the widowed for organic conditions is evidently due to senile and arteriosclerotic psychoses. The widowed, here as elsewhere, lacking the social support of a spouse, present a much lower threshold for hospitalization when suffering from these conditions.

The single male rate for schizophrenia is seen as largely contributing to the high over-all male rate and is in keeping with the well-documented selective celibacy of the male schizophrenic. Male widowed rates for schizophrenia are surprisingly high, and almost four times those of the married. For manic-depressive psychosis widowed males present a rate twice that of the single or married, but this difference is due to the higher age of the widowed and disappears on age standardization. In the female, manic-depressive rates for single and married become identical after age standardization. The high rates of male alcoholism have already been discussed and have been the subject of a separate study (Walsh, 1968).

Rates by residential area are of interest and follow a pattern. First the central areas present high rates, particularly for schizophrenia. This finding is classical (Faris and Dunham, 1939; Hare, 1956) and is now generally believed to be a phenomenon of "drift", as is the differential distribution between social classes (Goldberg

and Morrison, 1963). The figures for manic-depressive psychosis in the central area vary very greatly between Dublin 1 and 2, and for this unexpected finding no explanation is apparent. The high rate in Dublin 4 is seen to be largely the result of first admission rates for manic-depressive psychosis and alcoholism (Walsh, 1968). Dublin 4 is a high-income area and the expectation of manic-depressive psychosis and hospitalized alcoholism are known to be higher in the upper social groups. Manic-depressive rates are also high in the other private residential areas, Dublin 14 and Blackrock and Dunlaoghaire, but the very high rates for Dublin 2 are unexpected. Low over-all rates and, surprisingly, schizophrenic rates, are seen in Corporation housing estates largely composed of persons from social groups 4 and 5. There are three possible explanations for these low schizophrenic rates: first there may be a genuinely lower incidence of schizophrenia in these estates, secondly the low admission rate may be a nosocomial effect, although out-patient and community experience of schizophrenia does not confirm this, and thirdly there may be a high "drift" of schizophrenics from these areas. These estates also show low first admission rates for alcoholism, although a recent survey has shown them to have considerable non-hospitalized alcoholism (Kearney, Lawler and Walsh). County Dublin rates conform to the lower rates generally found in rural populations when compared with urban populations of the same catchment area.

Summary

The extent and characteristics of hospitalized mental illness in Dublin have been examined by a one-year study of first admissions to Dublin psychiatric facilities.

The extent of psychiatric illness as measured by first admissions was found to be among the highest known.

The first admission cohort examined resembles, in its psychiatric and social characteristics, similar samples elsewhere, and confirms the major hypotheses suggested by the epidemiology of mental illness in urban areas.

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