SEX PATTERN OF ADMISSIONS TO MENTAL HOSPITALS IN RELATION TO SOCIAL CIRCUMSTANCES

BY

C. R. LOWE AND F. N. GARRATT

From the Department of Social Medicine, Birmingham

In England and Wales at the present time very many more women than men are admitted each year to mental hospitals. It has not always been so. Indeed, 50 years ago admission rates were a little higher for males than for females. In 1901, the admission rate per 100,000 over the age of 15 was 93 for males and 89 for females (*i.e.* the male rate was then 4 per cent. higher than the female rate). The corresponding rates for 1951 were 153 and 196 respectively, the female rate now being 28 per cent. higher than the male rate.

The present-day excess of females among admissions is, of course, well recognized, and the reasons for it have been to a limited extent explored. But very little attention has been paid to the remarkable way in which the sex pattern has changed over the past half century. This change is all the more remarkable in that, in magnitude at least, it appears to be peculiar to England and Wales. In the United States and in Canada, for example, age standardized admission rates have always been, and still appear to be, higher for males than for females (Malzberg, 1955; Wanklin, Buck, and Hobbs, 1954).

In this paper we propose first to examine the secular change in the sex pattern of our national statistics and secondly to see what light can be thrown upon this change by an analysis of contemporary data on admissions to Birmingham mental hospitals.

ADMISSION TO MENTAL HOSPITALS IN ENGLAND AND WALES, 1884-1951

The Mental Treatment Act (1930), by establishing out-patient departments for the diagnosis and treatment of mental illness and by introducing a system of voluntary and temporary admission, profoundly altered the pattern of admission to hospital in

England. From Fig. 1 (opposite), however, it is clear that, although this act may have led to an accentuation of the difference between male and female admission rates, the difference was there before 1930. The swing from a masculine to a feminine excess has been proceeding gradually and fairly regularly over at least the past 50 years. At the beginning of the 20th century rates were a little higher for males than for females. By 1911 they were equal. Since then the difference between the sexes has been reversed and has become steadily more pronounced. Two phases are discernible, separated by the watershed of the Mental Treatment Act. Between 1901 and 1930 for both sexes admission rates declined, but declined at a much greater rate for males than for females. Since 1930 for both sexes the rates have increased, but have increased less rapidly for males than for females.

The age structure of the population has changed a great deal since 1900, and age has a considerable bearing upon likelihood of admission to hospital. We must consider, therefore, the possibility that the change in the sex pattern of admissions may be no more than the reflection of a change in population age structure.

The basic data relating to all direct admissions to mental hospitals in England and Wales are presented in Table I. They were obtained: for the years 1884, 1891, 1901 and 1911 from the Annual Reports of the Commissioners in Lunacy (1885, 1894, and 1904) and the Board of Control (1915); for the years 1921, 1931, and 1939 from unpublished sources made available by courtesy of the Board of Control; and for the year 1951 from the Registrar General's Supplement on Mental Health (1958). Since data for admissions before 1948 did not include certified patients admitted to workhouses and public assistance institutions, they are somewhat deficient when compared with data for 1951.

SEX PATTERN OF ADMISSIONS TO MENTAL HOSPITALS

89

FIG. 1—Secular trend of admission rates to mental hospitals for England and Wales, 1884-1951.

TABLE I
AGE AND SEX-SPECIFIC ADMISSION RATES TO MENTAL HOSPITALS PER 100,000 RELATED POPULATION
ENGLAND AND WALES, 1884-1951

Sex		Male							Female						
Age (yrs)		15-	25-	35-	45-	55-	65 and Over	All Ages 15 yrs and Over	15-	25-	35-	45-	55-	65 and Over	All Ages 15 yrs and Over
Year ..	1884 ..	46	91	115	111	107	105	87	44	88	111	107	98	90	83
	1891 ..	42	83	112	112	111	116	85	42	86	105	114	100	102	82
	1901 ..	45	88	118	122	128	149	93	42	84	111	125	116	130	89
	1911 ..	44	76	98	111	128	135	85	42	78	101	123	117	117	86
	1921 ..	39	70	87	94	111	128	79	41	74	96	115	107	106	82
	1931 ..	38	65	77	87	103	106	76	35	70	89	113	110	93	82
	1939 ..	64	86	90	97	111	115	91	46	85	108	136	137	110	100
	1951 ..	105*	169	133	137	171	230	153†	103*	172	191	214	222	268	196†

* 16-24.

† 16 and Over.

During the last part of the 19th century at all ages rates were higher for males than for females (Fig. 2A). By 1911 female rates were already substantially higher than male rates for the age groups 35-44 and 45-54 (Fig. 2B), and 20 years later the female excess was much more pronounced and included the age group 55-64 (Fig. 2C). Today the difference is even greater, and at all ages over 35 female rates are far in excess of the corresponding male rates (Fig. 2D). At the same time male rates have become strikingly bimodal, rising to a peak in young adult life (25-34), falling in middle life and rising rapidly again in the older age groups (55 and over).

The way in which the age pattern has changed since 1844 is shown in Fig. 3 (opposite). For each of the three age groups considered, there is a common pattern of a steady decline of admission rates from 1901 until 1930, which is followed by a rapid increase up to the present time. The relation between male and female rates, however, has been very different in the different age groups. In young adult life there has been no marked difference between the sexes over the whole period (Fig. 3A). In the older age groups male rates have until very recent years been consistently higher than female rates (Fig. 3C). But in middle life (Fig. 3B), we see a very much exaggerated picture of what has happened to the crude admission rate—a rapidly increasing excess of females, which is due to the facts that the decline between 1901 and 1930 was much greater for males than for females and that the rise since 1930 has been much less for males than for females.

Mention should be made here of the cohort method of examining secular trends of the type with which we are concerned (Springett, 1952). This method has proved of particular value in the study of

mortality rates from cancer (Case, 1956). It was applied to the data in Table I, but the results did not appear to us to throw any additional light upon the problem and they will not be presented.

To summarize, we may say that with the help of national data we have explored the gradual change from slightly higher admission rates for males at the beginning of the 20th century to substantially higher admission rates for females at the present time. This change is attributable to the fact that between 1901 and 1930, when total admission rates were declining, the rates in middle life (35-64) were falling much more rapidly for males than females, while from 1931 to the present time, when total rates have been rising sharply, the rates in middle life have been increasing much more slowly for males than for females.

ADMISSIONS OF BIRMINGHAM RESIDENTS TO MENTAL HOSPITALS, 1950-1952

Paucity of data makes it impossible to carry much further an analysis of the secular trend of admissions to mental hospitals for the whole country, and we turn therefore to information about all Birmingham residents who were admitted to the city mental hospitals during the years 1950, 1951, and 1952. Data were available both for first admissions and for re-admissions. Admission rates were expressed as the mean annual number of admissions for the 3-year period per 100,000 of the related population at the 1951 Census (Table II, opposite). In the analysis which follows we are concerned for the most part with patients admitted to hospital for the first time. Re-admissions showed similar sex differences and, since they formed a much less homogeneous group and there were comparatively few of them, it was considered justifiable to exclude them.

FIG. 2.—Age and sex-specific admission rates for England and Wales in (A) 1844, (B) 1911, (C) 1931, and (D) 1951.

SEX PATTERN OF ADMISSIONS TO MENTAL HOSPITALS

91

FIG. 3.—Secular trend of admission rates for England and Wales, 1884–1951, for the age groups (A) 25–34 yrs, (B) 45–54 yrs, and (C) 65 yrs and over.

TABLE II

AGE AND SEX-SPECIFIC ADMISSION RATES* TO BIRMINGHAM MENTAL HOSPITALS PER 100,000 RELATED POPULATION FOR 1951

Sex	Male							Female						
	15–	25–	35–	45–	55–	65 and Over	All Ages 15 yrs and Over	15–	25–	35–	45–	55–	65 and Over	All Ages 15 yrs and Over
First Admissions ..	46 (91)	75 (198)	66 (175)	61 (130)	102 (142)	204 (250)	82 (986)	47 (107)	83 (220)	86 (222)	90 (205)	110 (194)	229 (431)	103 (1,381)
Re-Admissions ..	30 (59)	65 (170)	65 (172)	48 (102)	54 (75)	51 (62)	54 (644)	24 (56)	50 (132)	66 (170)	80 (184)	82 (145)	69 (129)	61 (819)
All Direct Admissions ..	76 (150)	140 (368)	131 (347)	109 (232)	155 (217)	255 (312)	136 (1,630)†	71 (163)	133 (352)	151 (392)	170 (389)	192 (339)	298 (560)	163 (2,200)†

* Admission rates in this and subsequent Tables refer to the mean annual number of admissions for the 3-year period, 1950–1952, per 100,000 population at the 1951 census. Numbers of patients are given in brackets.
† The totals include four males and five females whose ages were not known.

In Fig. 4 (overleaf), age-specific first admission rates for Birmingham are compared with the corresponding rates for England and Wales. Although in general the local rates are a little lower, the difference between male and female admissions for Birmingham is very much the same as that for the country as a

whole. This difference will be examined in relation to:

- (1) social circumstances,
- (2) marital status,
- (3) diagnosis.

FIG. 4.—Age and sex-specific first admission rates in 1951, England and Wales and Birmingham compared.

(1) SOCIAL CIRCUMSTANCES

There is a great deal of evidence to suggest that admission to hospital for mental illness is to some extent related to social circumstances. It would be surprising if this were not so. Patients in good circumstances are for obvious reasons more likely to be cared for at home and treated as out-patients than patients from poor, overcrowded homes. And at the same time bad living and working conditions might be expected to precipitate break-down in border line cases.

Faris and Dunham (1939) found that first-admission rates to Chicago mental hospitals were directly related to the distance from the city centre of the district from which patients were admitted. The rates were highest for the poorer districts in the middle of the city and lowest for the better class districts around its periphery. This was also true for each major diagnostic sub-group, with the exception of manic-depressive psychosis, for which the admission rates appeared to be distributed at random throughout the city. From a comprehensive study of all patients under psychiatric care (out-patient and in-patient, private and public) in New Haven, Connecticut, during 1950, Hollingshead and Redlich (1953, 1954, 1958) concluded that the prevalence of mental illness is greatest among the population in the lowest social classes. (For the purpose of this study

social class was measured on a scale which, in addition to area of residence, took into account occupation and education.) More recently, Malzberg (1956) has demonstrated that in New York State there is a striking relationship between first admissions to mental hospital and educational status. He found that the rates were highest for those who had received no education and lowest for those who had been to High School or College. In England and Wales it is clear that, for males of working age, rates of admission increase sharply from I to V of the Registrar General's Social Classes (Registrar General, 1955). For schizophrenia there is more than a four-fold increase; for manic-depressive psychosis and psychoneurosis the trend, although present, is very much less marked. A pattern similar to that for the whole of the country has been shown also to be present in Bristol (Hare, 1955) and London, (Stein, 1957).

In most of these studies attention was focused mainly upon the social pattern displayed by the different diagnostic categories and the difference between the sexes was not explored. Indeed, when occupation is used as the index of social class (as it has been in the British studies), only the males in the population can be considered, and even for them the method has serious limitations.

The City of Birmingham is divided into 38 municipal wards. Special tabulations of the 1951

Census material were available which gave detailed information about the population, occupations, and housing conditions in each ward (City of Birmingham, 1957). Since the address of each patient at admission was known, it was possible to calculate a first admission rate for each of the wards and to relate it to certain indices of that ward's social and economic status within the city. The four indices available were:

- (a) *Lack of Amenities*.—Measured by the percentage of households within the ward which did not have the exclusive use of piped water, cooking stove, kitchen sink, water closet, and fixed bath (in the best and worst wards 8 per cent. and 96 per cent. of households respectively lacked all these amenities).
- (b) *Overcrowding*.—The percentage of households containing one or more persons per room (range 19–55 per cent.).
- (c) *Occupational Status*.—The percentage of gainfully occupied males in Social Classes IV and V combined (range 13–48 per cent.).
- (d) *Proportion of Single Person Households*.—The percentage of households consisting of one person only, *i.e.* of persons living alone (range 3–18 per cent.).

Our aim was to divide the 38 city wards into three approximately equal groups according to their social status and to compare the male with the female pattern of admission in those groups. There was a positive correlation between the ward admission rates (all ages 15 and over) and each of the four indices of ward status (Table III). The closest association was between the male admission rate and the lack of amenities ($r = +0.63$). The male rate and the proportion of single person households were also highly correlated ($r = +0.56$). In both these cases the corresponding correlation coefficient was very much lower for females. If a single index was to be used to effect our purpose of grouping the

wards according to the standard of living enjoyed by the people domiciled in them, the choice appeared to be between lack of amenities and proportion of single person households. These two variables were themselves highly correlated ($r = +0.77$). But when the proportion of single person households was held constant, the correlation between admission rate and lack of amenities was $+0.38$ for males and $+0.26$ for females, whereas when lack of amenities was held constant, the corresponding correlations between admission rate and proportion of single person households were $+0.15$ and -0.01 . This suggests, at least so far as Birmingham is concerned, that bad housing conditions may have more bearing upon the chances of admission to a mental hospital than social isolation, the importance of which may perhaps have been over-emphasized by Faris and Dunham (1939), Clark (1949), and Hare (1956).

The wards were therefore arranged in rank order according to the percentage of households in them lacking all the amenities. The fourteen wards with the worst housing conditions formed a natural group around the centre of the city. The remaining 24 wards were divided into a peripheral and an intermediate group, thus giving three ward groups with roughly comparable populations (Table IV and Fig. 5, overleaf).

Admission rates the three ward groups are shown in Table V (overleaf). For both first admissions and re-admissions the rates were highest in the wards at the centre of the city with the worst housing conditions and lowest in the wards around its periphery with best housing conditions. In each ward group the rates were higher for females than for males but the range from centre to periphery was greater for males and the difference between the sexes was most marked in the peripheral wards (Fig. 6, overleaf).

The pattern of admission in relation to ward group was not the same at all ages. Under the age of 35 admission appeared to be very little and over 65 not at all affected by social circumstances (Table VI, overleaf). It was among middle-aged patients (35–64) that admission to hospital was most clearly related to unsatisfactory living conditions. And it was in this age group that the sex difference was at its greatest. This point is clearly shown in Fig 7 (overleaf). In the central wards there was little difference between the sexes in the age pattern of first admissions. In the peripheral wards throughout middle life, rates were very much higher for females than for males. Indeed, in the age group 35–44, women were admitted to hospital at nearly twice the rate for men.

TABLE III

FIRST ADMISSION RATES FOR EACH MUNICIPAL WARD IN BIRMINGHAM CORRELATED WITH INDICES OF THAT WARD'S SOCIAL AND ECONOMIC STATUS, BY SEX

First Admission Rate Correlated with:	Correlation Coefficients	
	Males	Females
Percentage of Households without Exclusive Use of All Amenities ..	+0.63	+0.38
Percentage Overcrowding	+0.36	+0.39
Percentage of Occupied Males in Social Classes IV and V	+0.52	+0.47
Percentage of Single Person House- holds	+0.56	+0.29

TABLE IV
BIRMINGHAM MUNICIPAL WARDS CLASSIFIED IN RELATION TO AN INDEX OF HOUSEHOLD AMENITIES,
SHOWING FIRST ADMISSION RATES, BY SEX

Central Wards				Intermediate Wards				Peripheral Wards			
Rank Order	Index of Household Amenities*	First Admission Rate		Rank Order	Index of Household Amenities*	First Admission Rate		Rank Order	Index of Household Amenities*	First Admission Rate	
		Males	Females			Males	Females			Males	Females
1	96	110	107	15	66	87	87	26	24	50	113
2	94	93	120	16	59	113	130	27	24	47	87
3	94	77	57	17	58	90	120	28	23	97	110
4	92	83	100	18	46	60	90	29	22	80	113
5	92	117	120	19	43	93	87	30	17	60	83
6	91	73	140	20	41	80	100	31	14	50	70
7	89	70	113	21	39	43	107	32	14	57	93
8	85	107	100	22	39	60	83	33	14	43	80
9	84	110	107	23	37	87	107	34	13	80	120
10	83	83	103	24	37	80	80	35	13	53	97
11	78	100	110	25	29	83	117	36	10	63	63
12	68	73	100					37	9	63	77
13	68	110	107					38	8	60	83
14	66	77	107								

* Percentage of households without exclusive use of all the following amenities: piped water, cooking stove, kitchen sink, water closet, and fixed bath.

FIG. 5.—Birmingham municipal wards classified according to an index of household amenities.

TABLE V
ADMISSION RATES (ALL AGES OVER 15) BY SEX AND WARD GROUP, BIRMINGHAM, 1951

Sex		Male			Female		
		First Admissions	Re-Admissions	All Direct Admissions	First Admissions	Re-Admissions	All Direct Admissions
Ward Group	Central ..	91 (379)	58 (239)	149 (618)	105 (482)	67 (307)	173 (789)
	Intermediate ..	81 (274)	46 (156)	127 (430)	101 (403)	55 (220)	156 (623)
	Peripheral ..	62 (276)	41 (184)	103 (460)	92 (451)	49 (242)	141 (693)

TABLE VI
AGE AND SEX-SPECIFIC FIRST ADMISSION RATES, BY WARD GROUP

Sex		Male			Female		
Age (yrs)		15-34	35-64	65 and Over	15-34	35-64	65 and Over
Ward Group	Central ..	67 (112)	91 (184)	177 (83)	66 (116)	99 (208)	220 (157)
	Intermediate	57 (70)	64 (113)	222 (91)	60 (81)	89 (177)	222 (144)
	Peripheral ..	54 (92)	51 (123)	176 (61)	61 (113)	87 (224)	221 (114)

To summarize, when the present-day age-pattern of first admissions to hospital from the central wards of Birmingham was compared with that of admissions from the peripheral wards, it was found that the difference between the sexes was not unlike that disclosed when national admission rates at the end of the 19th century were compared with those of to-day. For the central wards of Birmingham in 1951 and for England and Wales in 1901 there was very little difference at any age between the sexes. To-day, for the peripheral wards of Birmingham as for the country as a whole, the rates in middle life are much higher for females than for males.

FIG. 7.—Age and sex-specific first admission rates for Birmingham in 1951, classified by ward groups.

(2) MARITAL STATUS

It is known that admission rates are in general much higher for single than for married persons (Registrar General, 1953, 1955; Norris, 1956). The interpretation of this observation is not easy. One would expect a psychotic personality to militate against marriage, while single persons, lacking the protection and support of a husband or wife, are perhaps more likely to be admitted to hospital. Whatever the explanation, it is clearly necessary to inquire whether marriage has any bearing upon the difference between the male and female admission rates which we are exploring.

In Birmingham, first admissions conformed to the general pattern and, for both males and females at all ages over 25, the rates were considerably higher for single than for married persons (Table VII). When age-specific rates for the two sexes were compared in relation to marital status, the excess of female admissions in middle life on which we have been focusing attention was found to be confined to

married patients (Fig. 8, opposite). Indeed, for the age groups 25–34, 35–44, and 45–54, in each of which there was a striking feminine preponderance among married patients, admission rates for single persons were higher for males than for females.

It was noted earlier (Table V and Fig. 6) that crude first admission rates were higher in the city wards with the worst housing than in those with the best housing, and that the gradient from worst to best was much steeper for males than for females. The next step, therefore, is to inquire what effect housing conditions had upon the admission of married and single persons. In the age group 25–54 (for which the sex difference was at its greatest) the rate of admission to hospital was lower in the peripheral wards than in the central wards for both married and single men (Table VIII and Fig. 9, overleaf). But for women the pattern was quite different. Ward housing conditions appeared to have little bearing upon the admission of married women, while for single women the peripheral ward group had the highest

TABLE VII
AGE AND SEX-SPECIFIC RATES (BIRMINGHAM) FOR SINGLE AND MARRIED PERSONS

Age (yrs)			15–	25–	35–	45–	55–	65 and Over	All Ages 15 yrs and Over
Sex	Male	Single ..	47 (79)	162 (112)	168 (51)	130 (23)	167 (15)	282 (23)	101 (303)
		Married ..	38 (11)	42 (81)	53 (121)	54 (102)	90 (109)	177 (147)	68 (571)
	Female	Single ..	46 (77)	136 (66)	159 (54)	121 (39)	182 (43)	345 (83)	110 (362)
		Married ..	46 (29)	69 (147)	72 (154)	78 (136)	97 (107)	173 (112)	82 (685)

FIG. 8.—Age and sex-specific first admission rates for Birmingham in 1951, classified by marital status.

admission rate. The effect of these trends upon the sex ratio of admissions was striking (Table VIII). For married persons the female admission rate was 80 per cent. higher than the male rate in the peripheral wards, and it was only 23 per cent. higher in the central wards. For single persons the female rate was 5 per cent. higher in the peripheral wards, but was 19 per cent. lower than the male rate in the central wards.

To summarize, it was shown in the preceding section that for the poorer districts of Birmingham there was no great difference between men and women in respect of the rate at which they were admitted for the first time in middle life. But for the better districts the rate was much higher for females than for males. This striking difference is due to the fact that, in the age group 25–54 for both married and single men, the admission rates were directly related to poor housing conditions, being lowest in the best and highest in the worst districts, whereas for married women the rates were high in all districts, and for single women they were actually highest in the best districts.

(3) DIAGNOSIS

The diagnostic classification of psychiatric illness is generally admitted to be a difficult and uncertain matter. There is sometimes considerable variation from hospital to hospital in the same area, and diagnostic criteria can vary from psychiatrist to psychiatrist even in the same hospital. The name given to a patient's illness at the time of his first admission to a mental hospital is particularly subject to terminological vagary. The results of our examination of pooled diagnostic data on first admissions from four large hospitals must therefore be interpreted with caution.

Data are presented only for the age group 25–54, for which, as shown above, the sex, social class, and marital status differences were greatest. Our purpose is to see what further light analysis by diagnosis can throw upon the reason why admission rates were very much higher for females than for males in this age group and why the excess of female over male rates was greatest in the peripheral wards.

TABLE VIII

FIRST ADMISSION RATES FOR PERSONS AGED 25-54 YRS, BY MARITAL STATUS, WARD GROUP, AND SEX

Marital Status		Married			Single		
Ward Group		Central	Intermediate	Peripheral	Central	Intermediate	Peripheral
Sex ..	Males	61 (126)	44 (72)	41 (97)	151 (73)	135 (47)	135 (46)
	Female	75 (148)	65 (108)	74 (178)	123 (49)	123 (50)	141 (48)
$\frac{F}{M} \times 100$		123	148	180	81	91	105

FIG. 9.—First admission rates for persons aged 25 to 54 for Birmingham in 1951, classified by marital status and ward groups.

The data were grouped into four diagnostic categories based on the International Statistical Classification of Diseases, Injuries and Causes of Death (World Health Organization, 1949):

- (i) Affective Psychoses (Code 301 and 302), which included only manic depressive reaction and involuntional melancholia.
- (ii) All Other Psychoses (Code 300, and 303-309), the

most important of which in this age group were schizophrenia, paranoia, and psychoses resulting from organic conditions.

- (iii) Psychoneuroses (Code 310-318).

- (iv) All Other Diagnoses (pathological and immature personalities, alcoholism and drug addiction, epilepsy, general paralysis, etc.).

The great excess of females among married persons in this age group was attributable to the fact that married women had much higher admission rates than married men for affective psychoses and psychoneuroses (Table IX). For these two categories there was also a considerable feminine preponderance among single persons. (The excess of males in the other two categories was sufficient, however, to over-ride this difference and to produce for all single persons a rate slightly higher for males than for females.)

In view of this it was considered justifiable to group single and married persons together for the purpose of examining the relation between the diagnosis and the ward group from which the patients had been admitted. When this was done (Table X) it was evident that three distinct trends were contributing to the excess of female admissions from the peripheral wards (Fig. 10, overleaf).

The first and most striking trend was in respect of Diagnostic Categories *ii* (all psychoses other than the affective psychoses) and *iv* (all other diagnoses). Patients who fell into these categories were admitted to hospital at a lower rate from the peripheral than

from the central wards. The gradient from the centre to periphery was present for both sexes but was very much steeper for males, with the result that, when all these conditions were grouped together, admission rates in the central wards were considerably higher for males than for females, while in the peripheral wards the reverse was true and rates were considerably higher for females than for males (Fig. 10c).

The second trend was in relation to the psychoneuroses (Diagnostic Category *iii*). For these conditions the admission rates were very much higher for females than for males in each of the ward groups, and for both sexes they were rather lower in the peripheral wards (Fig. 10b). However, the sexes did not differ very greatly in respect of the social gradient so that the psychoneuroses, although making a considerable contribution to the feminine preponderance among admissions from the city as a whole, played little part in determining the change in the sex-ratio from the centre to the periphery of the city.

The third trend was perhaps the most interesting; it was certainly the least expected. This was the sex

TABLE IX

FIRST ADMISSION RATES (BIRMINGHAM) FOR PERSONS AGED 25-54, BY SEX, MARITAL STATUS, AND DIAGNOSIS

Sex		Male			Female		
Marital Status		Single	Married	All Persons*	Single	Married	All Persons*
Diagnosis	(i) Affective Psychoses	14 (16)	11 (65)	11 (84)	27 (31)	20 (119)	22 (166)
	(ii) All Other Psychoses	70 (82)	16 (96)	24 (181)	60 (69)	19 (115)	26 (199)
	(iii) Psycho-neuroses	26 (30)	15 (90)	17 (127)	30 (34)	26 (156)	27 (204)
	(iv) All Other Diagnoses	32 (38)	7 (44)	11 (82)	11 (13)	7 (44)	8 (61)
Total		142 (166)	48 (295)	64 (474)	128 (147)	72 (434)	84 (630)

* Including widowed and divorced (13 males and 49 females).

TABLE X

FIRST ADMISSION RATES (BIRMINGHAM) FOR PERSONS AGED 25-54, BY DIAGNOSIS AND WARD GROUP

Sex		Male			Female		
Ward Group		Central	Intermediate	Peripheral	Central	Intermediate	Peripheral
Diagnosis	(i) Affective Psychoses	8 (22)	14 (28)	12 (34)	18 (46)	22 (47)	25 (73)
	(ii) All Other Psychoses	33 (85)	24 (49)	17 (47)	29 (72)	24 (52)	26 (75)
	(iii) Psycho-neuroses	20 (52)	15 (30)	16 (45)	32 (79)	24 (51)	26 (74)
	(iv) All Other Diagnoses	17 (45)	8 (16)	8 (21)	10 (25)	8 (17)	7 (19)
Total		78 (204)	60 (123)	53 (147)	89 (222)	77 (167)	84 (241)

FIG. 10.—First admission rates for persons aged 25 to 54 for Birmingham in 1951, by diagnosis and ward groups.

and ward group pattern of admission for the affective psychoses (Fig. 10A). As for the psychoneuroses, admission rates for the affective psychoses were very much higher for females than for males in each of the ward groups (the female rate was, in fact, twice the male rate). But in contradistinction to the psychoneuroses and to other psychoses and all other conditions, the rates for the affective psychoses were, if anything, a little higher in the peripheral than the central wards.

To summarize, it appears that from the diagnostic point of view there are two main reasons why there was a marked excess of females among patients admitted at ages 25–54 from the peripheral wards of the city and no great difference between the sexes among those admitted from the central wards. In the first place, for all psychoses other than the affective psychoses and for the group of miscellaneous conditions which included pathological personality and general paralysis, the admission rates were considerably lower in the peripheral than the central wards, and the difference was much greater for males than for females. Secondly, for the affective psychoses and the psychoneuroses, the admission rates were much higher for females than for males, and since they did not differ greatly from ward to ward in the city their proportionate contribution to the total admission rate was greatest at the periphery.

DISCUSSION

In the older parts of most large industrial towns in England and Wales it is still possible to find people living in 19th-century housing conditions and subject to something approaching 19th-century mortality and morbidity. Birmingham is no exception. With an extensive redevelopment plan in progress the pattern of housing is changing rapidly. But at the time of the 1951 Census the worst living conditions were still to be found in the centre of the city and the best at its periphery. In most of the central wards less than one in five of the households had exclusive use of a piped water supply, a cooking stove, a kitchen sink, a water closet, and a fixed bath; in most of the peripheral wards less than one in five were without these amenities. The present-day difference between the morbidity and mortality experience of families living in the poorer central wards and that of families living in the more well-to-do peripheral wards might be expected, therefore, to reflect to some extent the secular change that has occurred over the past half century for the country as a whole. The annual reports of successive medical officers of health for Birmingham make it quite clear that this is true for infant mortality and for morbidity from tuberculosis and the infectious diseases of childhood. Our data suggest that it may also be true for admissions to mental hospital.

At the beginning of the 20th century, the national admission rates were a little higher for males than for females. To-day they are very much higher for females than for males. We have found that this reversal of the sex-ratio is traceable to a change which occurred in the pattern of admissions in middle life: male rates declined substantially while female rates remained relatively stable. For example, for the age group 45-54, the male admission rates fell from 122 to 1901 to 87 in 1931 (a decline of 29 per cent.), while the female rates fell from 125 to 113 (a decline of only 10 per cent.). (Since 1930 the admission rates for both sexes have, of course, risen steeply but the same underlying pattern is discernible in that male rates have risen less steeply than female rates.) We have demonstrated that a resemblance to this secular change can be traced in the pattern of present-day admissions from the central, intermediate, and peripheral wards of Birmingham. For the age group 35-64, the male admission rates fell from 91 in the central to 51 in the peripheral wards (a decline of 44 per cent.), while female rates fell from 99 to 87 (a decline of only 12 per cent.).

This suggests that the secular change from a slight masculine to a considerable feminine preponderance observed at the national level has been brought about by the tendency for male admissions to be much more influenced by adverse living conditions than female admissions, with the result that as the standard of living has risen male rates have fallen but female rates have remained relatively unaffected. The Birmingham data indicate that the male rates most sensitive to social circumstances are those attributed to all psychoses other than the affective psychoses and to a group of miscellaneous conditions which includes pathological personality and cerebral syphilis. If once again we argue by analogy from the contemporary social pattern to the secular trend, it seems possible that between 1900 and 1930 admissions for these two diagnostic groups may have declined, and declined more for males than for females, while admissions for the affective psychoses and the psychoneuroses, both of which are highly feminine and are relatively unaffected by social circumstances, have remained stationary and have so been thrown into greater prominence. Since 1930 this pattern has been obscured by the rapid increase in admission rates brought about by the change in public attitude towards hospital care which was encouraged first by the legal provisions of the Mental Treatment Act and more recently by therapeutic advances. But the essential features of the difference between male and female admission

rates in relation to social circumstances have probably remained the same.

Early records are so inadequate and diagnostic criteria have changed so much that it is impossible to substantiate this suggestion from national data. Two points may be mentioned, however. First, for the period 1908-12, acquired syphilis accounted for 19.4 per cent. of male and 3.1 per cent. of female admissions (Commissioners in Lunacy, 1914); for 1950-52, the corresponding proportions were 2.4 and 0.7 per cent. (Registrar General, 1955, 1958). Secondly, Shepherd (1957), in his study of the major psychoses in an English county, concluded that between the two triennia 1931-33 and 1945-47 the first admission rate for schizophrenia had declined and that for affective illness had increased.

In conclusion, it must be admitted that inquiries of this nature tend to pose more questions than they answer. They serve a useful purpose, however, in that the problems they reveal are usually more specific than those they solve. It seems to us that our investigation has uncovered two problems worthy of closer scrutiny: why are admissions for the affective psychoses unrelated, or possibly inversely related, to adverse living conditions and twice as common for females as for males? and why are males with other psychotic disorders, in so far as admission to hospital is concerned, much more sensitive than females to adverse living conditions?

Both these questions relate to hospital admission rates which are as much a measure of the adequacy of out-patient facilities, the number of beds available, and the attitude of patients and their relatives to hospital care as of the prevalence of mental illness in the community. Nevertheless, if they can be answered, light may be thrown upon the part played by the social environment in the aetiology of the psychoses. Admission to hospital is inevitably related to social circumstances because domiciliary care is easier in a well-to-do than in a poor home. But this applies as much to the affective psychoses as to other psychotic disorders, and admission rates for these two groups of diseases behaved very differently in relation to housing conditions in the city wards. It may not be justifiable to assume that mental illness is precipitated by bad living conditions on the grounds that for most mental disorders admission to hospital was much commoner from the poorer parts of the city. But it seems to us reasonable to conclude that the incidence of the affective psychoses increases as standard of living rises from the evidence that admission for these conditions was slightly commoner from the better parts of the city.

SUMMARY

The first part of this paper is concerned with the secular change in the sex pattern of admissions to mental hospitals in England and Wales.

At the end of the 19th century admission rates were a little higher for males than for females, whereas to-day they are much higher for females than for males. This is due to a change in the pattern of admissions in middle life (35-64): between 1901 and 1930 male rates declined substantially while female rates remained relatively stable; since the Mental Treatment Act (1930) rates for both sexes have risen steeply, but much less for males than for females.

The second part presents data on first admissions of Birmingham residents to mental hospitals for the triennium 1950-52 in relation to census information about the 38 municipal wards from which they were admitted. Admission rates were found to be highly correlated with adverse housing conditions. The wards were divided into a central group with the worst housing, a peripheral group with the best housing, and an intermediate group.

Admission rates were highest for the central wards and lowest for the peripheral wards. The gradient from centre to periphery was most marked for middle-aged patients and was much greater for males than for females, with the result that, for the better wards at the city's periphery, the rates were very much higher for females than for males.

For both married and single men, admission rates in middle age were found to be highest for the central and lowest for the peripheral wards. In contrast, the rates for married women were high for all ward groups and for single women were actually highest for the peripheral wards.

For all psychoses other than the affective psychoses, and for a group of miscellaneous conditions which included pathological personality and cerebral syphilis, the rates were very much higher for the central than for the peripheral wards, and this difference was much more marked for males.

For the psychoneuroses, the rates were very much higher for females than for males and for both sexes they were only a little higher for the central wards.

For the affective psychoses, the rates were also very much higher for females than for males but they were, if anything, a little higher for the peripheral than for the central wards.

It is suggested that the difference between the admission rates for the poorer central wards and those for the better-to-do peripheral wards in Birmingham at the present time reflects to some extent the secular change which has occurred for the country as a whole over the past half century. The implications of this suggestion are discussed.

It is with pleasure that we acknowledge the assistance given to us by Dr. W. S. Maclay of the Board of Control and Mr. A. B. Neale of the Central Statistical Office, Birmingham. We are also indebted to the Birmingham Regional Hospital Board and to the Medical Superintendents of the four Birmingham mental hospitals for allowing us access to records.

REFERENCES

- Board of Control (1915). "1st Annual Report for the Year 1914". Part II. H.M.S.O., London.
- Case, R. A. M. (1956). *Brit. J. prev. soc. Med.*, 10, 159.
- City of Birmingham (1957). "Abstract of Statistics No. 4, 1955-57". Central Statistical Office, City of Birmingham.
- Commissioners in Lunacy (1885). 39th Report. H.M.S.O., London.
- (1894). 48th Report. H.M.S.O., London.
- (1904). 58th Report. H.M.S.O., London.
- (1914). 68th Report Part I. H.M.S.O., London.
- Clark, R. E. (1949). *Amer. J. Sociol.*, 54, 433.
- Faris, R. E. L., and Dunham, H. W. (1939). "Mental Disorders in Urban Areas". University of Chicago Press.
- Hare, E. H. (1955). *Brit. J. prev. soc. Med.*, 2, 191.
- (1956). *J. ment. Sci.*, 102, 349.
- Hollingshead, A. B., and Redlich, F. C. (1953). *Amer. sociol. Rev.*, 18, 163.
- (1954). *Amer. J. Psychiat.*, 110, 695.
- (1958). "Social Class and Mental Illness". Wiley, New York.
- Malzberg, B. (1955). *Ment. Hyg. (N.Y.)*, 39, 196.
- (1956). *Ibid.*, 40, 177.
- Norris, V. (1956). *J. ment. Sci.*, 102, 467.
- Registrar General (1953). "Statistical Review of England and Wales for 1949. Supplement on General Morbidity, Cancer and Mental Health". H.M.S.O., London.
- (1955). "Statistical Review of England and Wales for 1950-51. Supplement on General Morbidity, Cancer and Mental Health". H.M.S.O., London.
- (1958). "Statistical Review of England and Wales for 1952-53. Supplement on Mental Health". H.M.S.O., London.
- Shepherd, M. (1957). "A Study of the Major Psychoses in an English County". (Maudsley Monographs, No. 3). Chapman and Hall, London.
- Springett, V. H. (1952). *Lancet*, 1, 521, 575.
- Stein, L. (1957). *Brit. J. prev. soc. Med.*, 11, 181.
- Wanklin, J. M., Buck, C., and Hobbs, G. E. (1954). *Canad. J. Publ. Hlth*, 45, 246.
- World Health Organization (1949). "Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death". H.M.S.O., London.