

CHANGES IN DURATION OF STAY OF MENTAL HOSPITAL  
PATIENTS SUFFERING FROM FUNCTIONAL PSYCHOSES  
DURING THE PAST 20 YEARS.

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WE have reported a follow-up study of patients first admitted to London County Council Mental Hospitals in 1930 (Harris and Lubin, 1952, Harris and Norris, in press). The present paper deals with a group of similar patients, i.e., psychotics from whom epileptics, known organic cases, ascertained mental defectives, those over the age of 40 and those who had been admitted to a mental hospital previously were excluded, who were transferred to mental hospitals from St. Francis Observation Ward during the period May 1940 to May 1942. The main differences between this group and the 1930 one were: (a) The Mental Treatment Act of 1930 had come into operation and many were admitted to mental hospitals as voluntary patients; (b) modern physical methods of treatment were in use; (c) in most cases the history was known.

The patients were all under the care of one of the authors (A. H.) for approximately a fortnight in St. Francis Hospital. A generally acknowledged effect of the Mental Treatment Act has been the admission to mental hospitals of less severely ill patients than formerly. However, this tendency is likely to be less marked in the present series of patients, who had all been through the observation ward, than in the total of mental hospital patients, many of whom are admitted on a voluntary basis direct from outpatients clinics and general hospitals. Many of the patients in this series were not certifiable and would have had to be discharged if they had refused voluntary treatment, but on the other hand some of the voluntary patients were certifiable and would have been so dealt with if they had proved unco-operative.

The follow-up of the present series of 200 patients was carried out during 1951, by a search of the hospital records and of those of the Board of Control as before. It was decided, however, to omit the search of the Register of Deaths, since in the previous investigation this proved extremely laborious and costly and very few patients were found to have died out of mental hospitals, it being clear that the mortality rate among ex-mental hospital patients

living in the community is no greater than that among the general population. 89 patients, or 44.5 per cent., were traced completely through the hospital records and in 22 of the remainder 11 per cent. of the total, further evidence of subsequent hospitalization was obtained from the files of the Board of Control, leaving 89, or 44.5 per cent., who were deemed to have kept out of mental hospitals since their last recorded discharge, the corresponding figures in the previous follow-up being 50 per cent., 9 per cent. and 40 per cent. The slight fall in the proportion of patients completely traceable through the mental hospital records is probably related to the rise in the proportion of patients whose stay in hospital was comparatively brief.

## COMPARISON OF RESULTS.

Hereafter the patients first admitted to mental hospitals in 1930 are referred to as Group A and those first admitted to mental hospitals in 1940/42 as Group B. The composition of these two groups with respect to age and diagnosis is given in Table I. There are some differences, statistically insignificant,

TABLE I.—Comparative Distribution of Patients in Periods A and B by Age and Diagnosis.

Diagnosis and age.	Number of patients.			
	A		B	
	Observed.	Expected.	Observed.	Expected.
<i>Schizophrenia—</i>				
Less than 20 years . . . . .	50	51.65	18	16.35
20-29 years . . . . .	187	172.43	40	54.57
30-39 .. . . .	120	126.85	47	40.15
<i>Affective disorder—</i>				
Less than 20 years . . . . .	17	18.99	8	6.01
20-29 years . . . . .	53	56.97	22	18.03
30-39 .. . . .	98	93.43	25	29.57
<i>Atypical disorder—</i>				
Less than 20 years . . . . .	15	13.67	3	4.33
20-29 years . . . . .	55	56.21	19	17.79
30-39 .. . . .	37	41.78	18	13.22
Total . . . . .	632	631.98	200	200.02

Chi square = 12.75 *P* is greater than 0.10.

between the groups, which may therefore be regarded as similar in these respects. The overall death rate for period A was 10.1 per cent. and for B 6.5 per cent.; the difference is not significant (*P* is greater than .10). In the ensuing figures the deaths have been omitted.

Whereas all the patients in Group A were certified, in Group B 38 per cent. were voluntary throughout their stay in mental hospital, 37 per cent. were certified throughout, and 25 per cent. were admitted initially under one status which was changed either in the same or in a subsequent admission to another status. Of those patients who were only admitted once in the follow-up period of ten years, 55.7 per cent. were voluntary all through their stay, 30.9 per cent.

were certified and 13.4 per cent. had changed from one status to another, usually from certification on admission to voluntary status. The readmission rate in period A was 15.8 per cent. and in B 29.4 per cent.; this difference is highly significant ( $P$  is less than .001).

In Group B 27 per cent. of the patients remained in hospital throughout the whole of the first 10 years, the corresponding figure for Group A being 43 per cent., so that there is in Group A an excess of observed over expected cases with a stay of a full ten years.

However, of the certified patients in Group B 54 per cent. stayed the full ten years. 44 per cent. of the Group B patients had only one admission which terminated by discharge in the follow-up period, compared with 41 per cent. in the case of the Group A patients, so that the observed number of patients having only one admission in both groups correspond closely with the expectation. In B 63 per cent. of those who had only one admission were voluntary patients. A comparison by numbers of admissions (Table II(a) shows significant differences (Chi square = 24.3; d.f. = 3;  $P$  is less than .01) there being an excess in Group B of patients having two or more admissions and an excess in A of patients staying throughout. If we take certified patients in Group B alone, however, we find no significant differences between them and Group A (Chi square is less than 7.815; d.f. = 3;  $P$  is greater than .05).

Table II (b) gives details of the time spent in hospital by those patients who were admitted only once. Comparing Groups A and B there is a signifi-

TABLE II(a).—Comparison of Patients by Legal Status. Number of Admissions.

Number of admissions in 10-year follow-up.	Legal status in Period B.								All cases in Period A	
	Certified.		Voluntary.		Mixed.*		All cases.		No.	%
	No.	%.	No.	%.	No.	%.	No.	%.		
Staying throughout . . .	37	53.6	6	8.2	7	15.6	50	26.7	243	42.8
Only one completed admission . . .	23	33.3	52	71.2	7	15.6	82	43.9	235	41.4
Two admissions . . .	7	10.2	12	16.4	16	35.5	35	18.7	65	11.4
Three or more . . .	2	2.9	3	4.2	15	33.3	20	10.7	25	4.4
Total . . .	69	100.0	73	100.0	45	100.0	187	100.0	568	100.0

\* Detained under more than one section of the Act during the period(s) of stay in hospital.

TABLE II(b).—Duration of Stay of Patients who had only One Admission in 10 Years Follow-up Period.

Duration of stay.	Legal status in Period B.								All cases in Period A.	
	Certified.		Voluntary.		Mixed.*		All cases.		No.	%
	No.	%.	No.	%.	No.	%.	No.	%.		
Less than 5 months . . .	7	30.4	31	59.6	2	—	40	48.8	44	18.7
5 months . . .	9	39.2	11	21.1	3	—	23	28.0	102	43.4
10 " . . .	5	21.7	7	13.5	2	—	14	17.1	69	29.4
40 months and over . . .	2	8.7	3	5.8	—	—	5	6.1	20	8.5
Total . . .	23	100.0	52	100.0	7	—	82	100.0	235	100.0

cant excess of patients who stay for less than 10 months in B and an excess of those who stay between 10 and 39 months in A, but no significant differences with regard to those who stay 40 or more months. (Total Chi square = 28.4; d.f. = 3;  $P$  is less than .01: 83 per cent. of total Chi square due to excess of short stay patients in Group B). If we take only the certified patients in Group B we find no significant differences between them and Group A (Chi square is less than 7.815; d.f. = 3;  $P$  is greater than 0.05).

Table II (c) refers to the mean total stay in hospital during the ten years after first admission of all patients except those who died during this period. In Group B as a whole schizophrenic and affective patients have significantly shorter stays than those in the corresponding diagnostic categories in Group A. (Schizophrenics, difference = 13.6 months, S.E. difference = 5.87,  $P = .02$ ; Affectives, difference = 16.9 months, S.E. difference = 5.83,  $P$  is less than .01) but there is no difference between the patients in the atypical category. In Group B we find without exception that certified patients have the longest stay and voluntary patients the shortest stay in each diagnostic group. The means for each diagnosis separately and for all diagnoses together of certified patients in Group B are not significantly different from those of corresponding patients in Group A. Fig. 1 summarises the data for mean total duration of stay, showing the above-mentioned distinctive features.

In Table II(d) the distribution of patients according to total time spent in hospital is shown by diagnosis and group. Patients in Group B with affective disorders and schizophrenia are found in larger proportions in the short stay categories than in Group A, but this difference is not seen in patients with atypical disorders. Comparison of certified schizophrenics in Group B with schizophrenics in Group A shows very little difference.

It will be seen that there are significant differences between the two groups

TABLE II(c).—Mean Total Duration of Stay (deaths excluded).

Diagnosis.	Legal status in Period B.				All cases in Period A.
	Certified.	Voluntary.	Mixed.*	All cases.	
<i>Schizophrenia</i> —					
Number of patients . . .	54	19	25	97	330
Mean total stay (months) . . .	84.6	49.0	61.1	71.6	85.2
Standard error . . .	6.8	12.6	9.2	5.2	2.7
<i>Affectives</i> —					
Number of patients . . .	3	41	9	53	143
Mean total stay (months) . . .	55.0	14.6	27.3	19.0	37.9
Standard error . . .	103.0	4.5	12.2	4.5	3.7
<i>Atypical</i> —					
Number of patients . . .	13	13	11	37	95
Mean total stay (months) . . .	62.1	21.7	49.5	44.1	44.0
Standard error . . .	15.7	9.2	11.5	7.6	4.8
<i>All diagnosis</i> —					
Number of patients . . .	69	73	45	187	568
Mean total stay (months) . . .	79.1	24.8	51.5	51.2	66.4
Standard error . . .	6.2	4.7	6.5	3.7	2.2

\* Detained under more than one section of the Act during the period(s) of stay in hospital.

and that the outcome tends to be more favourable in Group B. However, this improvement shows a consistent linkage with legal status and would seem to be due entirely to the admission of voluntary patients in the second period, disappearing when they are excluded from consideration.

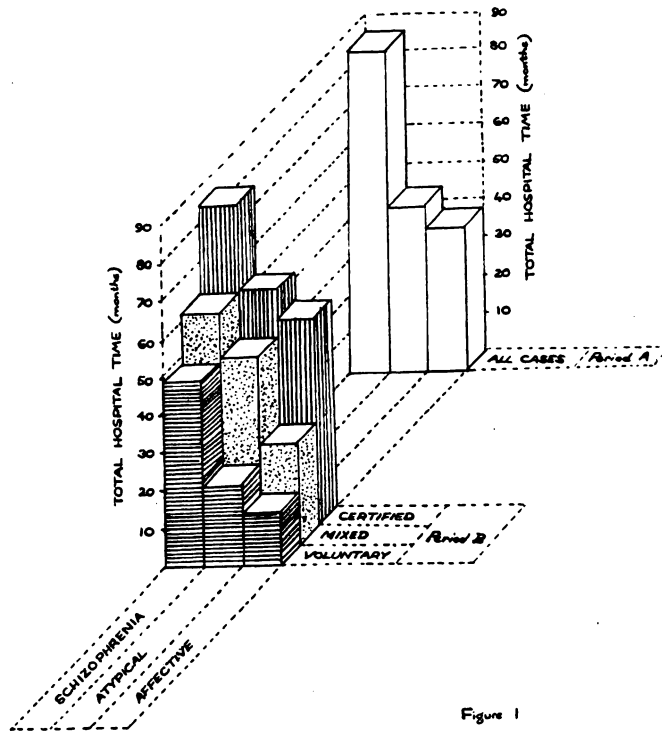


Figure 1

FIG. 1.

TABLE II(d).—*Distribution of Patients by Duration of Stay and Diagnosis in the Two Periods.*

Diagnosis and period.	Cumulative per cent. persons with total hospital time less than							Per cent. persons staying 120 mths. or more.
	10 mths.	20 mths.	40 mths.	60 mths.	80 mths.	100 mths.	120 mths.	
<i>Schizophrenia—</i>								
All in Period A . . .	17.3	22.7	27.9	31.2	33.0	35.8	40.3	59.7
Certified in Period B . . .	20.0	23.6	29.1	30.9	32.7	36.4	43.6	56.4
All in Period B . . .	23.7	32.0	36.1	43.3	46.4	48.5	59.8	41.2
<i>Affectives—</i>								
All in Period A . . .	43.7	58.4	69.7	73.9	73.9	80.3	81.7	18.3
All in Period B . . .	60.4	75.5	90.6	90.6	90.6	92.5	92.5	7.5
<i>Atypical—</i>								
All in Period A . . .	34.4	54.2	65.7	69.8	71.9	75.0	79.2	20.8
All in Period B . . .	37.8	48.6	62.2	64.9	70.3	81.1	81.1	18.9

## THE EFFECT OF THE NEW PHYSICAL TREATMENTS.

Of the 200 patients in Group B, 69 received some form of physical treatment for their psychiatric condition, 49 having E.C.T., 11 convulsive therapy induced by drugs, 8 insulin coma treatment alone, 4 insulin coma in addition to convulsive therapy, 1 modified insulin alone, 1 modified insulin in conjunction with E.C.T. and 1 patient receiving E.C.T. also had a leucotomy. The proportions of treated and untreated patients were similar in each diagnostic group and there were no differences between the proportions of discharges in the treated and untreated groups. Among patients with affective disorders there was a significant excess of treated cases among those with a total hospital stay of more than 12 months in hospital and correspondingly, a significant excess of untreated cases among those with a stay of less than 12 months (Table III).

TABLE III.—*Total Duration of Stay among Treated and Untreated Cases in Period B.*

Diagnosis and duration.	Number of cases.				Chi square.	Probability.
	Treated.		Not treated.			
	Obs.	Exp.	Obs.	Exp.		
<i>Schizophrenia—</i>						
< 12 months . . . . .	9	10·934	19	17·066	} < 5·991 . . . <i>P</i> > 0·05	
12- „ . . . . .	6	7·419	13	11·580		
60- „ . . . . .	26	22·649	32	35·351		
Total . . . . .	41		64			
<i>Affective disorders—</i>						
< 12 months . . . . .	5	9·68	30	25·320	} 7·89 . . . <i>P</i> = 0·02 (with Yates correction)	
12- „ . . . . .	6	4·28	7	8·72		
60- „ . . . . .	5	2·54	2	4·46		
Total . . . . .	16		39			
<i>Atypical disorders—</i>						
< 12 months . . . . .		5·95	11	11·05	} < 5·99 . . . <i>P</i> > 0·05	
12- „ . . . . .	3	3·50	7	6·5		
60- „ . . . . .	5	4·55	8	8·45		
Total . . . . .	14		26			

This seems to be due to the rather conservative expectant policy adopted at most of the hospitals towards these patients. In the other two diagnostic groups there were no differences with regard to total hospital stay between the patients who had and those who had not received physical treatments. Among the patients staying less than 12 months, 68 per cent. of the schizophrenics, 86 per cent. of affectives and 65 per cent. of the atypical cases received no physical treatment whatsoever. The readmission rate (57 per cent.) of treated affective cases who were discharged at least once during the follow-up period was significantly higher than that (16 per cent.) of untreated cases (Chi Square for 1 degree of freedom 8·542, *P* is less than 0·01); there were no statistically significant differences between the rates for treated and untreated schizophrenic and atypical cases. Although one would not regard these figures as

conclusive evidence against the physical treatments used, it is nevertheless clear that they cannot have played a substantial part in the production of the differences between Groups A and B.

#### OTHER PROGNOSTIC FACTORS.

As the history of many of the patients in Group B was known the opportunity was taken to investigate the effect of factors which it had been impossible to examine in the previous investigation.

A history of psychotic illnesses in parents or siblings was given for 52 of the patients; in 109 patients the parents and siblings were known to have been free from psychosis; in the remainder the family history was unknown. No significant differences were found regarding mean stay and frequency distribution in the different period groups between those patients who had a positive family history and those who had not.

The prognostic significance of duration of symptoms before admission was investigated; for this purpose apparent remissions were ignored and the first appearance of mental symptoms was regarded as the start of the illness. Tables IV(a) and (b) exhibit the findings. On the whole those patients with a short history tend to have a shorter stay in hospital, but the only significant difference found was between the group with a history of less than 6 months and those with one of more than 12 months (difference = 35.3 months, S.E. of difference = 13.9,  $P = .01$ ).

TABLE IV(a).—*Total Duration of Stay in relation to Duration of symptoms Before Admission. Patients in Period B only. (Mean Total Stay).*

Duration of symptoms.	Mean stay and standard error (months).	Median stay (months).	No. of patients.
Less than 6 months	42.5 ± 4.9	9.6	102
6 months—	49.1 ± 10.4	15.0	22
12 months—	77.8 ± 13.0	120.0	18
24 months or more	47.3 ± 9.2	10.0	28
Not recorded	85.0 ± 10.9	81.1	17

TABLE IV(b).—*Frequency Distribution.*

Total stay in hospital.	Duration of symptoms.					
	Less than 6 months.		6 months or more.		Not recorded.	
	No.	%.	No.	%.	No.	%.
Less than 10 months	45	44.1	21	30.9	3	17.6
10 months—	25	24.5	19	27.9	1	5.8
60 months—	13	12.7	5	7.4	5	29.5
120 months or more	19	18.6	23	33.8	8	47.1
Total	102	100.0	68	100.0	17	100.0

#### DISCUSSION.

The essential finding is: that in the latter period there is a higher proportion of patients with a favourable outcome and this appears to be due to the admission of a large proportion of voluntary, and presumably less seriously ill, patients



in the latter period. There were only 8 temporary patients, all but 2 being included in the *changed status* category, so that these have not been considered separately. The inference to be drawn from these results is that the apparent improvement in the prognosis of patients admitted in recent years is due more to the effect of the Mental Treatment Act (1930) in admitting less severely ill patients to mental hospitals than to therapeutic advances. A possible fallacy in the interpretation of these results can be suggested: namely, that some of the patients now admitted under Voluntary Status would formerly have been admitted under certification, and if these had a particularly favourable outcome then the certified patients in period B would not be comparable with the whole group in period A. The chief reason for believing that this might be so is that there might be a tendency to certify those patients whose illness appeared long-lasting and chronic rather than to treat them as voluntary patients. However, it is noteworthy that when the three groups of patients in period B, i.e., certified, voluntary and mixed, are compared with respect to duration of illness before admission we find no significant differences. The length of history was ascertained for all but 19 of the 200 patients. Among certified patients 59 per cent., among voluntary 62 per cent. and among mixed 57 per cent. had histories of less than six months' duration; a history of duration of between 6-24 months was elicited in 28 per cent. of certified, 15 per cent. of voluntary and 26 per cent. of mixed groups, whereas in the certified group 13 per cent. had a history longer than two years and the corresponding figures for the voluntary and mixed groups were 23 per cent. and 17 per cent. respectively. We have seen earlier that length of history was probably associated with length of hospital stay, and in respect of this prognostic criterion at any rate, the certified patients in B were not more unfavourably placed than the voluntary patients at that time.

If patients are being admitted at an earlier stage of their illness and are more readily influenced by treatment one would expect as a result a fall in the long stay population of the mental hospitals, which has not taken place. In fact, in Period B 75 per cent. of the patients whose total stay in hospital during the follow-up period was less than 12 months received no physical treatment whatsoever so that the preponderance of short-stay cases in Period B over those in A (see Table II(d)) cannot be attributed to the effects of physical treatment. There is certainly a marked tendency for those with less than six months' history to do well, but it seems likely that many of them would have recovered without inpatient treatment and that most of them would not have been admitted to mental hospitals in 1930.

The practical significance of these results lies in the fact that there is a tendency to regard the existing overcrowding in mental hospitals as a short-term effect of increased admission rates. Hopes have been expressed that the introduction of physical treatments would in time greatly reduce the chronic mental hospital population and if this were so the current overcrowding problem would be a matter of less urgency. There has been little statistical evidence to support this viewpoint (Alexander, 1945; Salzman, 1947; Rees, 1949; Norris, 1952) and the rapid turnover of mildly ill psychotic patients now being admitted to mental hospitals will not lessen the need for an increase of mental hospital accommodation.



## SUMMARY.

A group of 200 patients suffering from functional psychoses who had passed through an observation ward and been admitted to a mental hospital between May 1940 and May 1942 was followed up for a period of 10 years. Their duration of stay in hospital was compared with that of a similar group first admitted to a mental hospital in 1930. In the second group the average length of stay was significantly less and there was a higher proportion of patients whose stay in hospital was short but of these only 25 per cent. received some form of physical treatment. The evidence suggests, therefore, that the differences found were due in the main to the reception of a less severely ill type of patient into the mental hospitals as a result of the Mental Treatment Act and to the increasing confidence of the public in the mental hospitals.

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