

# DIAGNOSTIC CHARACTERISTICS RELATED TO SERVICES IN PSYCHIATRIC CLINICS FOR CHILDREN\*

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THE standard diagnostic nomenclature of mental disorders (1) has been applied to children since the initiation in 1954 of nationwide psychiatric clinic reporting (2). Much criticism has been evoked and numerous difficulties cited in the application of these standard classifications to children (3) (4). We have encountered a number of such problems but even with these limitations have been able to demonstrate large differences in the risk of clinic admission by diagnosis and by population groups (5). In this paper, we should like to consider a corollary issue: to what extent is the psychiatric classification an operationally important variable in determining the course of clinic service for the child patient? We shall use data from one state (Maryland) where an intensive educational effort with clinic professional and clerical personnel preceded and accompanied the collection of reports.

Maryland is an eastern seaboard state of 10,000 square miles and three million population; its large urban center, Baltimore City, has approximately one million people. Four Maryland counties met the 1950 census definition of a metropolitan area—Baltimore and Anne Arundel counties, which are contiguous with Baltimore City, and Montgomery and Prince George's counties, adjacent to Washington, D.C. About a fourth of the population was classified as rural in the 1950

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census, while it was estimated that a sixth of the 1958 population was non-white, of whom nearly two-thirds lived in Baltimore City.

Some fifty facilities qualify as outpatient psychiatric clinics, and are defined as administratively distinct psychiatric services for outpatients where a psychiatrist is regularly in attendance and takes the medical responsibility for all patients. These fifty facilities are heterogeneous in affiliation and purpose and include (a) independent clinics which stem from the early child guidance and mental hygiene movements, (b) part-time local health department clinics organized to extend mental health services to the rural centers, (c) training clinics of two large medical schools in Baltimore, (d) after-care clinics for state hospital patients, (e) a federally operated clinic for veterans, and (f) a few clinics under miscellaneous auspices, including a court diagnostic clinic.

#### METHOD

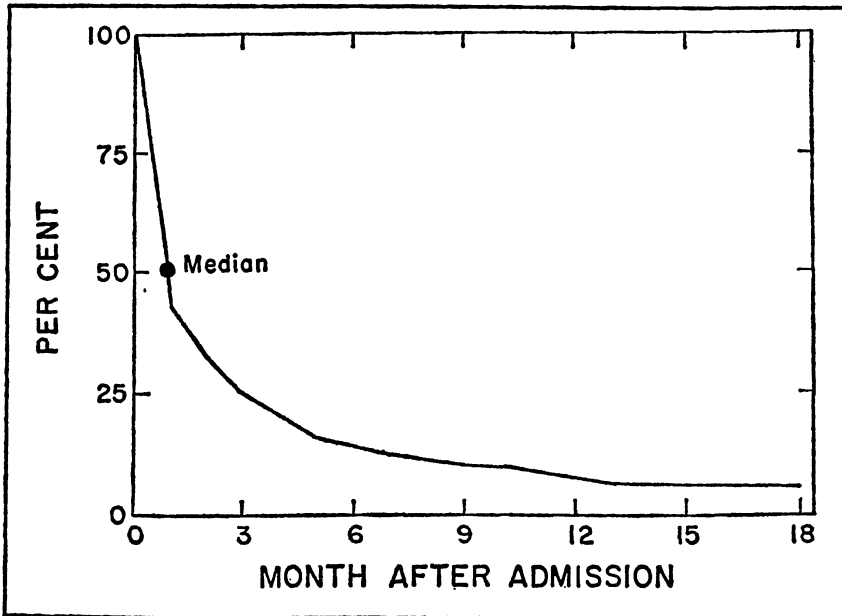
*Definitions.* A brief statement on reporting definitions and procedures may be helpful. A patient is admitted upon the first face-to-face interview with a professional clinic staff member. He is to be classified as terminated, i.e., removed from the clinic's active rolls, as soon as service is completed and in *all* cases within a ninety-day period following last interview. These definitions are in accord with the national definitions for clinic reporting (6) except that the national definition of termination of service specifies certain exceptions to this ninety-day rule.

A partial report containing the patient's demographic but not psychiatric data is submitted upon admission or first interview. A complete report containing information on psychiatric classification, type of service, number of interviews with or about a patient, condition after treatment, and disposition is submitted at termination. The patient is classified as improved if in the clinician's judgment there has been any gain in his condition.

For our present study, a psychiatric classification was requested in all instances where the patient had not yet been terminated. The clinic staff reported four-fifths of all psychiatric classifications as diagnoses (that is, based upon a formal study by a psychiatrist), and one-fifth as impressions provided by other professional staff. For 4 per cent of the children, no psychiatric description could be obtained.

*Life Table Method.* Our study includes nearly 5,000 admissions of Maryland residents under twenty years of age reported by all of the outpatient psychiatric clinics in Maryland during an eighteen month period (July 1, 1958–December 31, 1959). Discharge data on these patients were collected until March 31, 1960; this provided an observation period ranging from three to twenty months. Our life table cohort method permits the combination of data for observation periods of varying length (7) and eliminates any bias resulting from the study of terminated cases only.

Fig. 1. Percentage of admissions, 0–19 years, remaining under care at the end of each month after admission.

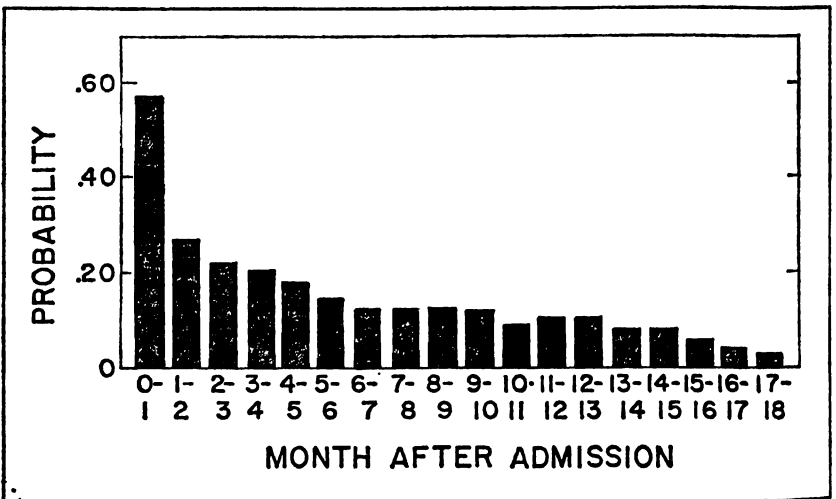


MONTH	ALL PATIENTS	AGE				AGES 5-14						
		0-4	5-9	10-14	15-19	Sex		Baltimore City Residents		Clinic Location		
						Males	Fe-males	White	Non-white	Balti-more	Metro-politan County	Non-Metro-polita Count
Number of Admissions	4,816	431	1,535	1,757	1,093	2,287	1,005	553	263	1,036	746	1,144
1	42.9	28.8	43.5	48.2	39.1	47.4	42.8	48.0	38.0	47.5	61.1	39.3
3	24.8	8.0	24.8	30.3	22.5	28.6	25.7	31.5	20.3	33.8	40.0	21.5
6	14.1	3.6	14.2	16.6	14.0	16.3	13.8	23.0	11.3	23.4	19.5	10.4
9	9.6	3.0	9.7	10.8	10.3	10.2	10.3	17.7	7.9	16.9	13.7	5.3
12	7.1	2.4	6.6	8.0	8.1	7.2	7.7	13.5	7.5	13.2	9.7	3.0
Estimated Mean Number of Months Under Treatment	2.8	1.4	2.8	3.2	2.8	3.0	2.8	3.8	2.5	3.9	3.8	2.2

Table 1. Percentage of admissions remaining under care at the end of selected months after admission by age, and for admissions aged 5-14 years by sex, race (for Baltimore residents) and clinic location.

A life table may be defined as a systematic method of describing survivorship in a population over time. In this instance, the "survivors" are those who remain in active clinic

Fig. 2. Probability that admissions, 0-19 years, will receive final interview during each month after admission if under care at the beginning of the month.



service, defined as the period between first and final interview, for specified intervals.

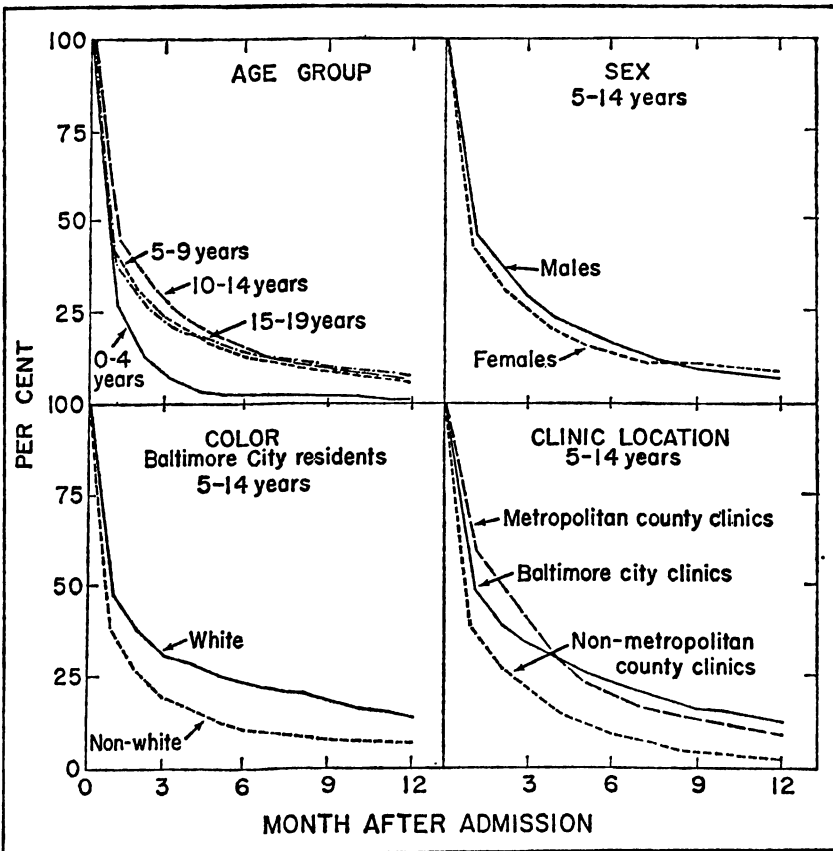
Several modifications made in this analysis to the standard life table methodology, are described in the appendix and include:

- (a) the adjustment of observed time lapse data from calendar month intervals to exact thirty day intervals after admission (4), and
- (b) a probability study of services received.

### FINDINGS

As a background to this study which is focused primarily on diagnostic characteristics, we should like to review

Fig. 3. Percentage of admissions remaining under care at the end of each month after admission by age, sex, race and clinic location.



MONTH	MALES		FEMALES		BALTIMORE CITY RESIDENTS		
	Brain Syndromes and Mental Deficiency	Psycho-genic Disorders	Brain Syndromes and Mental Deficiency	Psycho-genic Disorders	White		Non-white
					Brain Syndromes and Mental Deficiency	Psycho-genic Disorders	
Number of Admissions	546	1,542	310	623	124	372	76
1	28.7	57.0	27.1	53.1	26.2	56.9	29.6
3	11.7	36.6	10.5	34.9	12.1	38.3	7.2
6	6.0	21.0	4.0	19.1	8.3	27.6	1.3
9	3.2	13.2	3.3	13.9	7.1	20.4	0
12	1.7	9.3	2.3	10.4	6.2	14.8	0
Estimated Mean Number of Months Under Treatment	1.6	3.7	1.5	3.6	1.9	4.4	1.1

Table 2. Percentage of admissions, aged 5-14 years, remaining under care at the end of selected months after admission, by diagnostic classification and by sex, race (for Baltimore residents) and clinic location.

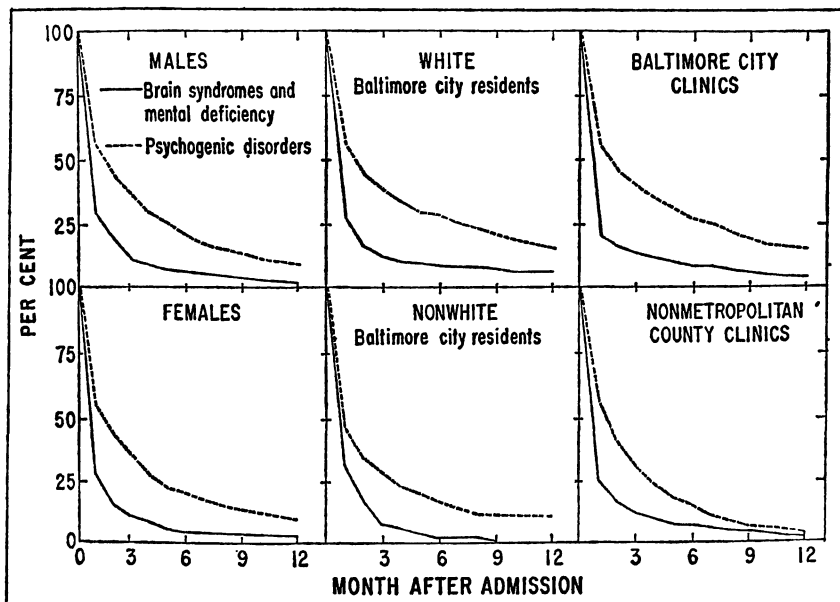
some general findings on clinic services for child patients. As illustrated in Fig. 1 and Table 1, clinic services are brief for a large proportion of child patients—over half receive their final interview within the first month after admission; a relatively small proportion receive care beyond the first four months. However, after the first month, the rate at which patients leave the clinic declines markedly (Fig. 2). Five per cent of those who entered at the beginning of the study were still under care at the end of eighteen months.

As indicated by the heights of the retention curves in Fig. 3 (from Table 1) the length of the clinic stay increases with successive age groups until late adolescence, when it shows some decrease. Boys tend to stay in clinics somewhat longer than girls, whites considerably longer than nonwhites. Patients of clinics located in the non-metropolitan counties have the shortest duration of service—this is presumably related to the limited services available in counties distant from psychiatric centers. Our findings corroborate those of an earlier study (7).

(cont.)	BALTIMORE CITY CLINICS		NON-METROPOLITAN COUNTY CLINICS	
Non-white	Brain Syndromes and Mental Deficiency	Psychogenic Disorders	Brain Syndromes and Mental Deficiency	Psychogenic Disorders
Psychogenic Disorders				
158	162	759	397	633
45.6	20.4	56.1	23.1	53.2
28.2	13.3	39.9	11.2	31.1
16.8	7.9	27.5	6.2	14.8
11.9	6.1	19.0	3.7	7.3
11.2	4.0	14.6	1.5	4.5
3.3	1.7	4.4	1.5	2.9

In discussing the significance of diagnostic classifications in this frame of reference, we shall limit our analysis to the age

Fig. 4. Percentage of admissions aged 5-14 years remaining under care at the end of each month after admission by diagnostic classification and by sex, race and clinic location.



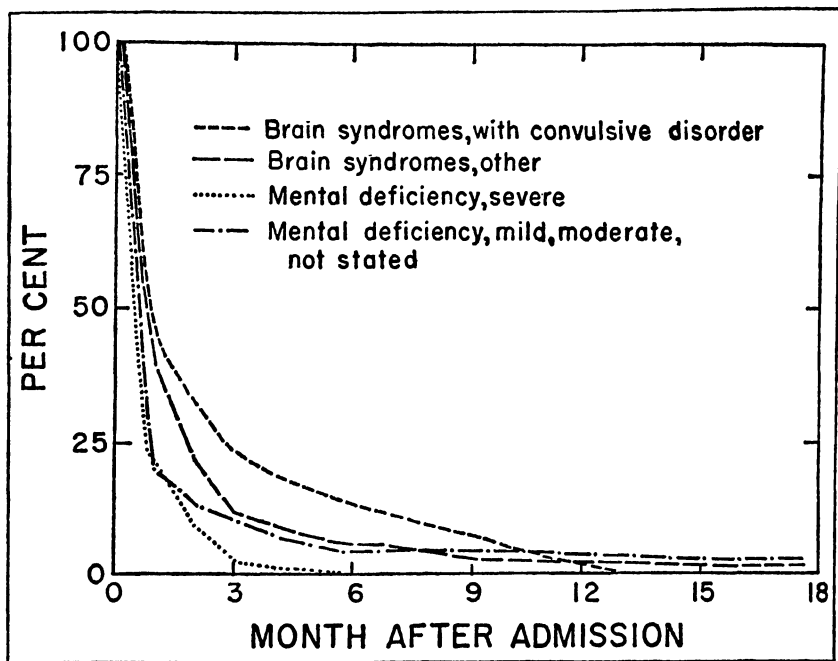


Fig. 5. Percentage of admissions aged 5-14 years with brain syndrome or mental deficiency remaining under care at the end of each month after admission.

group five to fourteen years in order to eliminate the variability introduced by very young age and by late adolescence. Fig. 4 and Table 2 illustrate that patients may be divided into two sharply different diagnostic groups. For the patients with brain syndromes or mental deficiency, clinic service extending beyond the first or second month after admission is unlikely. In contrast, patients with psychogenic disorders tend to have a considerably longer clinic experience. These findings are noted for each demographic group of patients and for each clinic location.

Within the group of brain syndromes and mental deficiency, several subgroups can be fairly well delineated. Patients with brain syndromes associated with convulsive disorder are retained longer than patients with brain disorders of other etiology (Fig. 5 and Table 3). Mental defectives, either moderate or severe, are retained for the shortest period of time.



MONTH	BRAIN SYNDROME		MENTAL DEFICIENCY	
	With Convulsive Disorder	All Other	Severe	Mild, Moderate, or not Stated
Number of Admissions	89	247	78	442
1	45.5	38.1	21.8	20.1
3	24.2	12.2	3.2	9.6
6	14.3	5.5	0	4.4
9	7.7	2.4	0	3.5
12	1.5	1.7	0	2.2
Estimated Mean Number of Months Under Treatment	2.5	1.7	0.9	1.4

Table 3. Percentage of admissions, aged 5-14 years, with brain syndrome or mental deficiency remaining under care at the end of selected months after admission, by diagnostic sub-groups.

For example, the proportion remaining in the clinic at the end of 3 months is 24 per cent for those with convulsive disorder, 12 per cent for those with other brain disorders, 3 per cent for

Table 4. Percentage distribution of number of interviews for admissions, aged 5-14 years, with brain syndrome or mental deficiency, by diagnostic sub-group.

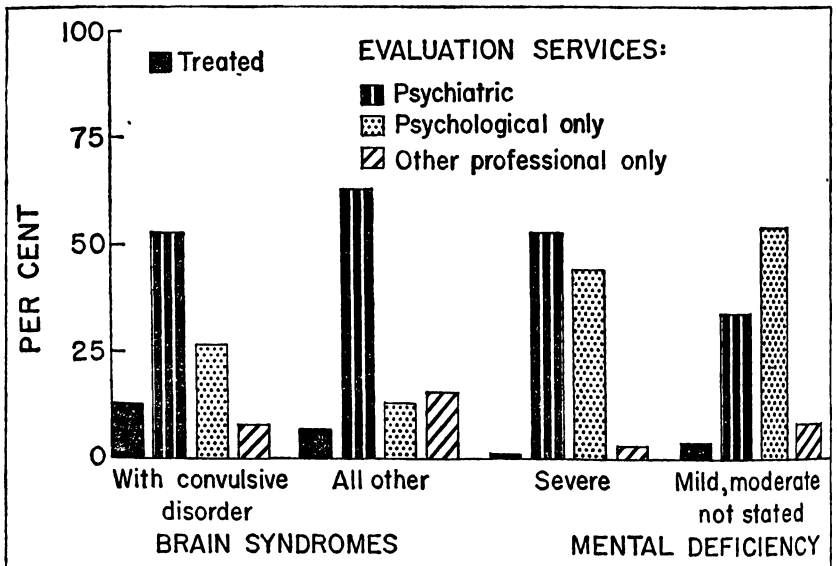
NUMBER OF INTERVIEWS	PER CENT OF PATIENTS			
	Brain Syndrome		Mental Deficiency	
	With Convulsive Disorder	All Other	Severe	Mild, Moderate, or not Stated
Number of Admissions <sup>1</sup>	81	241	78	428
1	13	13	14	37
2	27	26	41	26
3	1	7	15	11
4	5	7	14	7
5-9	37	40	16	15
10 and Over	17	7	0	4
Median	6	4	2	2

<sup>1</sup> With final interview within 18 months of admission.

the severely mental deficient and 1 per cent for other mental deficient. After the sixth month, the number of cases remaining under observation in each cohort does not provide reliable probabilities of further decline.

These findings on length of care are directly related to the number of interviews and type of service received. The median number of interviews is 6 for brain syndromes associated with convulsive disorders, 4 for other brain syndromes, but only 2 for the mental deficiencies (Table 4). Over a third of the mild or moderate mentally deficient receive one interview only. Although relatively few cases are treated, there are some differences by disorder; 13 per cent of patients with convulsive disorder, 7 per cent of those with other brain syndromes, but only 4 per cent or less of the mentally deficient receive treatment (Fig. 6 and Table 5). In every clinic location, the majority of the brain syndrome and severely mentally deficient cases who have not been treated are examined by a psychiatrist. Less severely defective children seen in the more rural clinics are usually examined by the psychologist only.

Fig. 6. Percentage distribution of type of service for admissions aged 5-14 years with brain syndrome or mental deficiency.



Patients with brain impairment associated with convulsive disorder are referred typically to health agencies while other brain syndromes are more likely to be referred to institutions for mental defectives (Fig. 7 and Table 6). In contrast, the public school is the facility usually employed for the further care of the mentally deficient. The severe defectives are three times more likely to be referred for institutional care than the moderate. However, it is surprising that the statement "further care not indicated" is made about as often (12 per cent of the time) for both groups of defectives.

In contrast to the brain syndromes and mental deficiencies, the major rubrics of psychogenic disorder are not too clearly demarcated by service pattern. On the average, children with a psychoneurotic disorder have the longest clinic stay; transient situational personality disorders rank next, psychotic disorders third and personality disorders fourth. This rank order differs considerably, however, by patient and clinic variable.

Table 5. Percentage distribution of type of service and condition after treatment for admissions, aged 5-14, years with brain syndrome or mental deficiency, by diagnostic sub-group.

TYPE OF SERVICE AND CONDITION AFTER TREATMENT	BRAIN SYNDROME		MENTAL DEFICIENCY	
	With Convulsive Disorder	All Other	Severe	Mild, Moderate, or not Stated
Number of Admissions <sup>1</sup>	81	241	78	428
Treated	12.7	7.3	1.3	4.3
Improved after Treatment	8.5	5.1	1.3	2.6
Not Improved or Worse	4.2	2.2	0	1.7
Evaluation Services Only	87.4	92.3	98.8	95.8
Psychiatric Service	52.7	63.0	52.6	33.7
Psychological Service Only	26.7	12.8	43.6	54.0
Other Professional Service Only	8.0	16.5	2.6	8.1
Service Unknown	0	0.4	0	0

<sup>1</sup> With final interview within 18 months of admission.

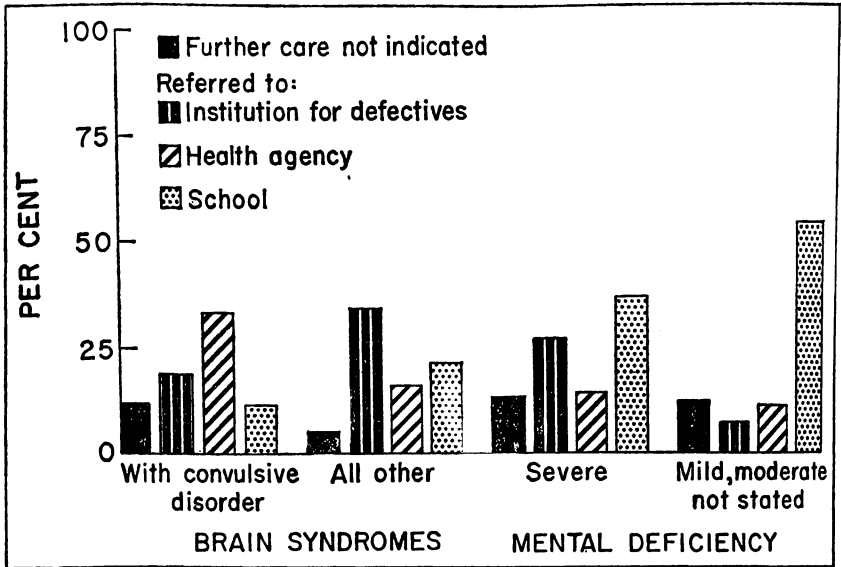


Fig. 7. Percentage distribution of disposition for admissions aged 5-14 years with brain syndrome or mental deficiency.

Table 6. Percentage distribution of disposition of admissions, aged 5-14 years, with brain syndrome or mental deficiency, by diagnostic sub-group.

DISPOSITION	BRAIN SYNDROME		MENTAL DEFICIENCY	
	With Convulsive Disorder	All Other	Severe	Mild, Moderate, or Not Stated
Number of Admissions <sup>1</sup>	81	241	78	248
Not Referred	22.2	18.5	18.0	19.3
Further Care Not Indicated	11.8	5.0	12.8	11.8
Withdrawn	9.3	8.8	2.6	4.8
Other	1.1	4.7	2.6	2.7
Referred to	77.9	81.5	82.1	80.8
Institution for Mental Defectives	18.7	34.2	26.9	7.4
Health Agency or Physician	32.8	15.9	14.1	10.9
School	11.6	21.5	37.2	53.6
Other	14.8	9.9	3.9	8.9

<sup>1</sup> With final interview within 18 months of admission.

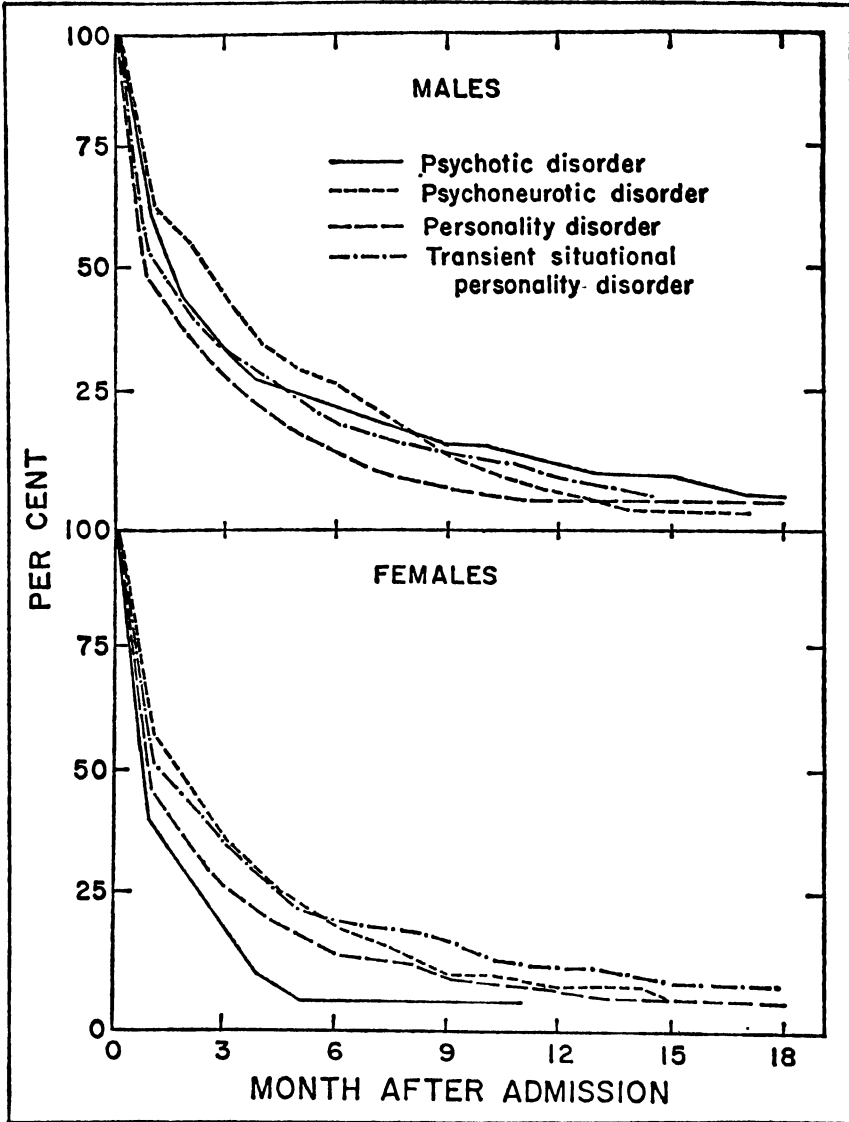


Fig. 8. Percentage of admissions aged 5-14 years with psychogenic disorders remaining under care at the end of each month after admission, by sex.

For example, service is briefer for psychotic girls than for other female patients (Fig. 8 and Table 7), but this relation is not found for boys. In non-metropolitan county clinics (Fig. 9 and Table 8), the psychoneurotic child is retained for a rel-

MONTH	MALES				FEMALES			
	Psychotic Disorder	Psycho-neurotic Disorder	Personality Disorder	Transient Situational Personality Disorder	Psychotic Disorder	Psycho-neurotic Disorder	Personality Disorder	Transient Situational Personality Disorder
Number of Admissions	94	204	529	685	36	114	175	290
1	64.4	66.9	51.4	57.8	40.3	61.8	49.1	54.0
3	36.2	47.1	32.7	36.9	20.8	39.0	29.4	38.4
6	25.2	28.4	16.1	22.0	5.6	21.3	15.6	22.4
9	16.9	15.9	8.5	15.7	5.6	12.4	11.0	17.8
12	13.7	7.7	6.4	11.4	1) <sup>1</sup>	9.1	7.9	13.4
Estimated Mean Number of Months Under Treatment	4.3	4.4	3.1	3.9	1.9	3.8	3.1	4.1

<sup>1</sup> All withdrawn from observation.

Table 7. Percentage of admissions, aged 5-14 years, with psychogenic disorders remaining under care at the end of selected months after admission, by sex and disorder.

atively long time; in Baltimore City clinics, for a relatively short time. For each category of psychogenic disorders, Bal-

Table 8. Percentage of admissions, aged 5-14 years, with psychogenic disorders remaining under care at the end of selected months after admission, by clinic location and disorder.

MONTH	BALTIMORE CITY CLINICS				NON-METROPOLITAN COUNTY CLINICS			
	Psychotic Disorder	Psycho-neurotic Disorder	Personality Disorder	Transient Situational Personality Disorder	Psychotic Disorder	Psycho-neurotic Disorder	Personality Disorder	Transient Situational Personality Disorder
Number of Admissions	61	126	215	338	30	49	258	283
1	58.2	56.8	59.1	54.9	63.3	75.5	39.3	60.8
3	43.4	36.9	43.7	39.5	25.0	53.1	21.9	35.9
6	30.6	25.3	29.5	27.7	10.0	35.6	10.7	15.1
9	26.3	14.2	17.4	21.4	0	17.0	5.7	7.9
12	21.5	8.6	13.5	16.8	0	5.6	3.9	5.5
Estimated Mean Number of Months Under Treatment	5.1	3.8	4.5	4.6	2.4	4.8	2.3	3.3

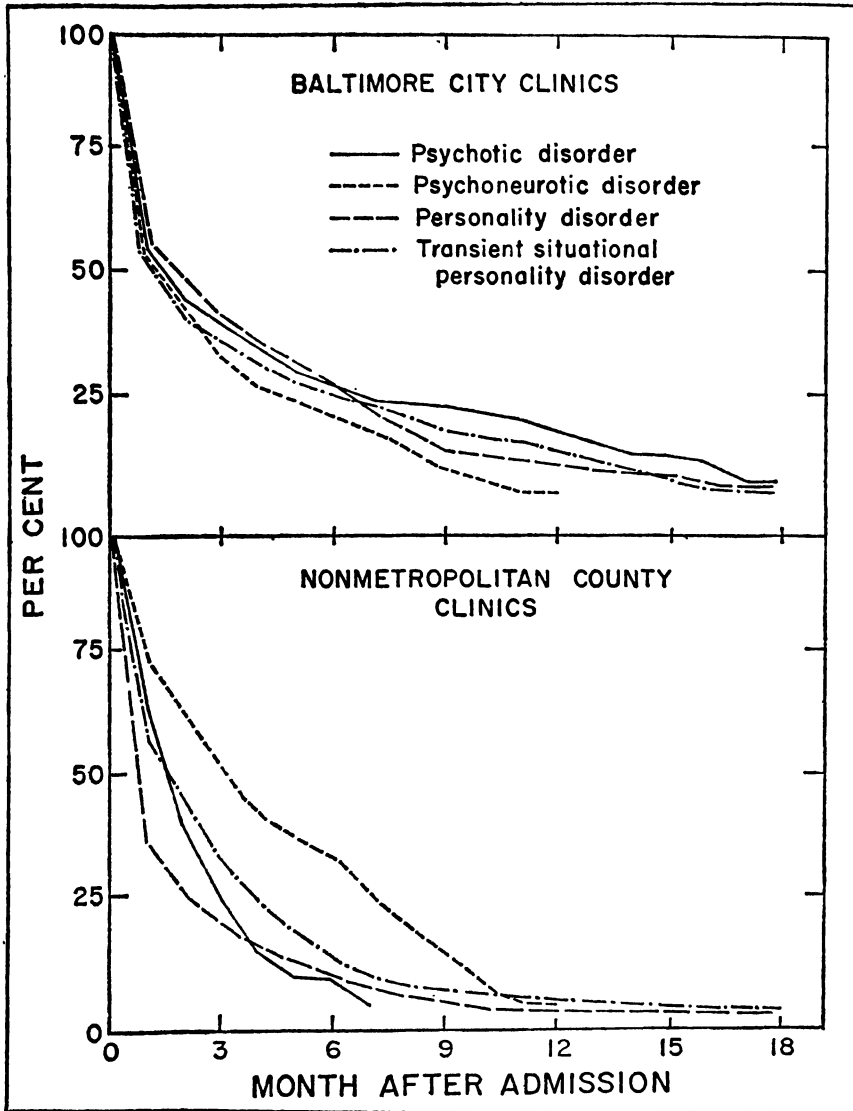


Fig. 9. Percentage of admissions aged 5-14 years with psychogenic disorders remaining under care at the end of each month after admission, by clinic location.

timore City whites are retained longer than Baltimore City non-whites (Fig. 10 and Table 9).

Some interesting differences in retention for different time periods can be noted in some of these curves, however,—such

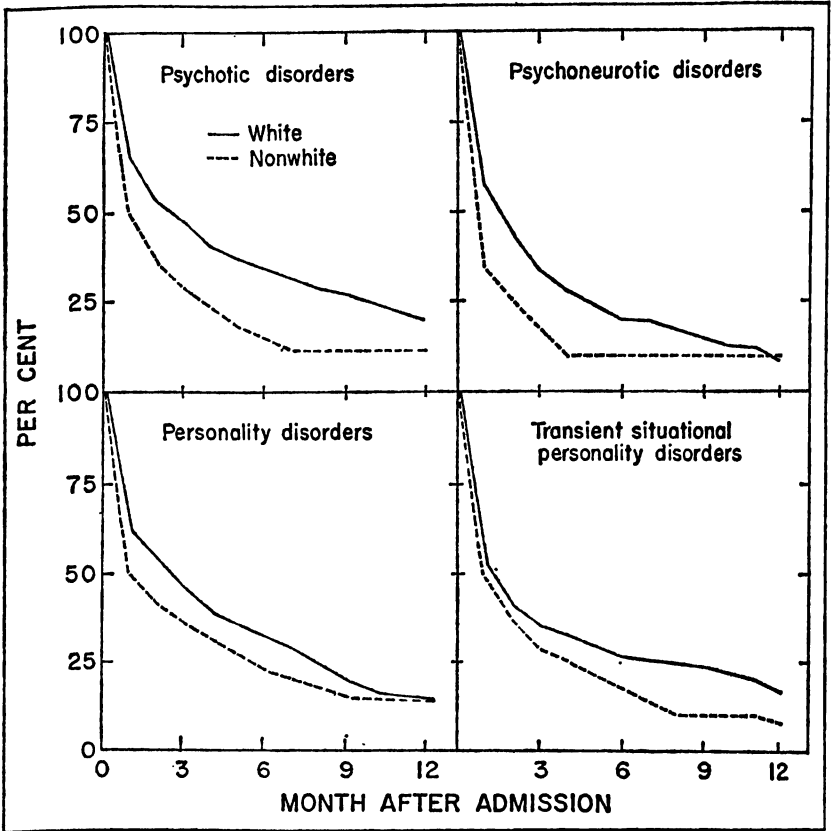


Fig. 10. Percentage of admissions of Baltimore residents aged 5-14 years with psychogenic disorders remaining under care at the end of each month after admission, by race.

as some tendency for the psychotic and transient situational disorder curves to flatten out at a fairly high level after an initial sharp drop. This is depicted more clearly in Fig. 11, which shows the probability of being retained in successive six month periods for the four groups. Compared with psychoneurotic disorders, psychotic children and those with adjustment reactions have a relatively low probability of being retained in the clinic for the first six months; those that are left have a high probability of remaining under care for the next six months. Personality disorders have the highest probability of staying through the third six month period if they remain in care to the beginning of that period.

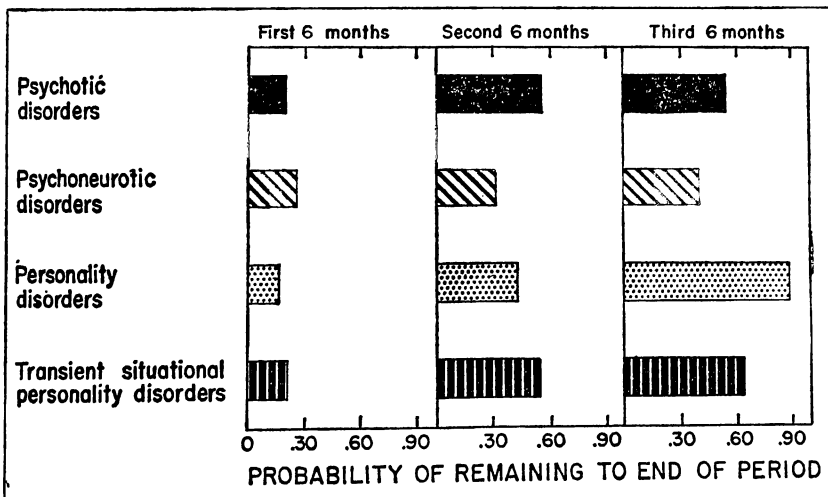


MONTH	PSYCHOTIC DISORDERS		PSYCHONEUROTIC DISORDERS		PERSONALITY DISORDERS		TRANSIENT SITUATIONAL PERSONALITY DISORDERS	
	White	Non-white	White	Non-white	White	Non-white	White	Non-white
Number of Admissions	25	26	64	20	122	40	151	69
1	66.0	50.0	57.8	35.0	62.3	48.8	51.3	47.1
3	48.0	28.9	35.2	17.5	44.3	35.0	34.4	28.3
6	35.6	15.5	22.3	10.0	32.3	21.7	25.9	16.7
9	28.9	12.4	15.5	10.0	19.4	14.2	23.2	10.8
12	22.2	12.4	9.5	10.0	14.2	14.2	17.1	8.1
Estimated Mean Number of Months Under Treatment	5.7	3.4	3.8	2.6	4.7	3.9	4.4	3.1

Table 9. Percentage of admissions of Baltimore residents, aged 5-14 years, with psychogenic disorders remaining under care at the end of selected months after admission, by race and disorder.

The median number of interviews (five or six) is about the same for the four diagnostic classifications, but the distributions differ—the mode, for example, is only one interview for personality disorders but four for psychotic disorders (Table

Fig. 11. Probability of admissions aged 5-14 years with psychogenic disorders remaining under care during each six-month period after admission if under care at the beginning of the period.



10), indicating more staff time spent in the diagnosis of the latter. One-third of the psychoneurotic children receive ten interviews or more compared with only one-fourth of children with other disorders. The proportion receiving long term treatment (twenty interviews or more), however, is about the same for all four groups—10 per cent. Some deviations from these data are observed for individual clinics.

Interesting contrasts between the categories of psychogenic disorders are noted in the proportion of patients treated and, among those treated, in the ratio of improved to unimproved (Fig. 12 and Table 11). Twenty per cent of children with psychotic disorder and 25 per cent of those with personality disorder are treated compared with 31 per cent of children with adjustment reactions and 41 per cent of the psychoneurotic children. For each disorder, the proportion treated differs by clinic, age group, sex and color. However, among those treated the ratio of improved to unimproved is remarkably consistent within each disorder. Psychotic children who are the least likely to be treated have generally the least favor-

Table 10. Percentage distribution of number of interviews for admissions aged 5-14 years, with psychogenic disorders.

NUMBER OF INTERVIEWS	PER CENT OF PATIENTS			
	Psychotic Disorders	Psycho-neurotic Disorders	Personality Disorders	Transient Situational Personality Disorders
Number of Admissions <sup>1</sup>	114	267	624	818
1	4	7	18	9
2	6	15	17	15
3	5	8	6	12
4	16	9	8	11
5-9	44	28	28	29
10-19	16	20	12	14
20 and Over	9	13	11	10
Median	6	6	5	5
Mode	4	2	1	2

<sup>1</sup> With final interview within 18 months of admission.

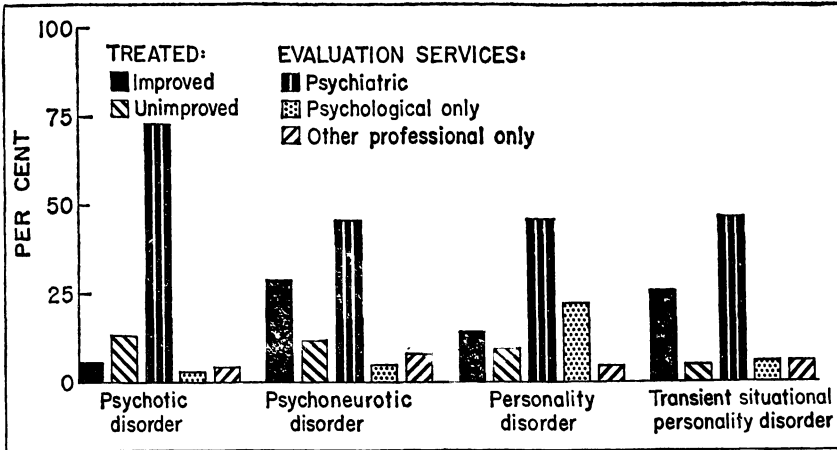


Fig. 12. Percentage distribution of type of treatment and condition after treatment for admissions aged 5-14 years with psychogenic disorders.

able outcome—two unimproved for each improved. Personality disorders, somewhat more likely to be treated, show the reverse—three improved for each two unimproved. Adjustment reactions, which have the next highest proportion treated,

Table 11. Percentage distribution of type of service and condition after treatment of admissions, aged 5-14 years, with psychogenic disorders.

TYPE OF SERVICE AND CONDITION AFTER TREATMENT	PSYCHOTIC DISORDERS	PSYCHO-NEUROTIC DISORDERS	PERSONALITY DISORDERS	TRANSIENT SITUATIONAL PERSONALITY DISORDERS
Number of Admissions <sup>1</sup>	114	267	624	818
Treated	19.8	40.5	24.5	30.7
Improved after Treatment	6.4	29.0	14.7	25.9
Not Improved or Worse	13.4	11.5	9.8	4.8
Evaluation Services Only	80.2	59.5	75.5	68.9
Psychiatric Service	72.8	46.4	46.9	47.0
Psychological Service Only	3.3	4.6	23.2	11.3
Other Professional Service Only	4.1	8.5	5.4	10.6
Service Unknown	0	0	0	0.4

<sup>1</sup> With final interview within 18 months of admission.

show the best ratio of improved to unimproved—six to one. Psychoneurotic disorders, the most likely to be treated, have an improvement ratio of only three to one—half that for adjustment reactions. Among those not treated, nearly all with a psychotic disorder were seen by a psychiatrist whereas one-fifth or more of non-treated patients with other disorders received psychological or other professional services only.

Let us look at the relationship between psychiatric classification and disposition (Table 12). More than half the patients with psychotic disorder are referred to a mental hospital; only 7 per cent (excluding those who withdraw) receive no immediate plans for further care. The most frequent disposition for personality disorders (39 per cent) is to non-medical community agencies (school, casework agencies, court). Sixty per cent or more of both the situational and psychoneurotic disorders either withdraw or receive no further care. However, the situational reactions are twice as likely as psychoneurotic dis-

Table 12. Percentage distribution of disposition of admissions, aged 5-14 years, with psychogenic disorders.

DISPOSITION	PSYCHOTIC DISORDERS	PSYCHO- NEUROTIC DISORDERS	PERSONALITY DISORDERS	TRANSIENT SITUATIONAL PERSONALITY DISORDERS
Number of Admissions <sup>1</sup>	114	267	624	818
Not Referred	19.9	65.7	38.2	60.4
Further Care Not Indicated	0.8	19.2	10.1	27.4
Withdrew	13.1	19.6	12.6	19.9
Other	6.0	26.9	15.5	13.1
Referred to	80.1	34.4	61.8	39.6
Mental Hospital	53.3	8.1	7.5	3.9
Other Outpatient Psy- chiatric Facility	6.8	9.5	5.6	5.0
School, Casework Agency, or Court	12.6	11.3	39.3	24.0
Other	7.4	5.5	9.4	6.7

<sup>1</sup> With final interview within 18 months of admission.

orders (24 per cent versus 11 per cent) to be referred to non-medical agencies for further help.

### DISCUSSION

At this point we would like to return to the question we posed at the beginning of this paper: to what extent is psychiatric classification an operationally important variable in determining the course of clinic service for the child patient? Obviously, the relation between the psychiatric classification and the service offered can be studied only in clinics which provide a variety of services in addition to diagnosis.

The diagnosis of brain syndrome and/or mental deficiency is likely to lead to the provision of relatively brief service. Only for brain syndromes associated with convulsive disorders is even limited treatment provided. In addition, there is the paradoxical finding that 13 per cent of the severely defective cases are said to require no further care. These data are not in accord with other information (8) that both defective and organically handicapped children and their families are in need of medical and rehabilitative services. Although some of these children are being referred elsewhere for help, the limited services reported for these patient categories would appear to indicate a failure of outpatient psychiatric clinics to take appropriate leadership in providing responsible care for these children.

In a previous paper (5) we noted that the diagnosis of brain syndrome as opposed to that of mental deficiency was made far more often when the examination was made by the psychiatrist rather than by the psychologist. Our data support the belief that many children are placed in the category of idiopathic mental deficiency rather than brain syndrome because of the lack of supporting medical information and psychiatric evaluation. It is possible, however, that differential assignment of patients at intake may account for part of this relationship.

In general, the psychogenic disorders receive more treatment and more psychiatric evaluative services. However, psycho-

genic disorders, unlike the brain syndromes and mental deficiencies, interact with other patient variables in determining service patterns so that the relationships are not as simple. In addition it appears that in many instances the service offered to the patient is determined more by clinic policies than by patient needs. It is difficult to explain the greater services offered white than non-white patients in terms of medical requirements. This clearly suggests that social and other factors rather than diagnostic needs may be a major consideration.

Nonetheless, some generalizations with regard to each disorder can be made:

The diagnosis of psychotic disorder is likely to be made after a relatively large number of diagnostic interviews (4); to lead to referral for hospital care (53 per cent); to result in the lowest proportion receiving outpatient treatment (20 per cent), but the highest proportion receiving twenty interviews or more among those treated (48 per cent); and to be associated with the poorest rate of improvement (32 per cent).

The diagnosis of personality disorder is frequently made after very brief contact (one or two interviews); is associated with the highest rate of referral to nonpsychiatric agencies (39 per cent); leads to a relatively low rate of treatment (25 per cent) but once again to a high proportion of long term treatment (42 per cent) if any treatment is provided; and to a rate of improvement (60 per cent) which is higher than for psychosis but lower than for either of the remaining two categories.

The diagnosis of psychoneurotic disorder is associated with a variety of disposition—no single description categorizes it. Psychoneurotics are taken into treatment in the highest proportion (41 per cent), but only one-third of those treated receive twenty or more interviews. The rate of improvement (72 per cent) is higher than for either of the two preceding categories but lower than that for the situational disorders.

The diagnosis of situational disorder is associated with a high frequency of referral to nonpsychiatric agencies (24 per cent) and of decisions that no further care is indicated (27 per cent).

Treatment is offered to 31 per cent of these children as compared with 41 per cent for psychoneurotics. Once treatment is undertaken, however, it is as often long term (33 per cent). The improvement rate (84 per cent) is the highest for any diagnostic category.

In general therefore treatment is most likely to be offered for those disorders with a high improvement rate. This interpretation of the data, however, is subject to the limitation that the diagnosis may be made retrospectively. The patient who improves may be assigned to a diagnostic category which the clinician believes reflects the possibility of change, whereas the patient who fails to improve may be assigned a more morbid diagnosis. If diagnosis is to be evaluated as a prognostic tool, it is essential that clinicians be requested to report a diagnosis on admission. The provisional diagnosis can then be correlated both with outcome and with the final diagnosis.

The wide variety of dispositions for patients classified as psychoneurotic suggests the importance of examining sub-groups within this classification. This will require a larger number of cases than is available to us at present but will be undertaken in the future. Perhaps one could work "backwards" from disposition to patient characteristics in order to delineate meaningful syndromes.

The similarities between clinic practices in relation to both psychoneurotic and adjustment reactions raise some question about the precision of this differentiation. One wonders about the 10 per cent of children diagnosed as adjustment reaction cases whose treatment includes twenty or more interviews, a figure only slightly lower than the 13 per cent of the neurotics who receive as much treatment as this. The improvement rate is considerably higher among the adjustment reactions but once again we wonder whether this is the result of retrospective diagnosis. We have previously reported (5) the sudden disappearance of adjustment reaction as a diagnosis at the age of eighteen. Clinical experience indicates that children's problems are classified within the category of "transient situational"

despite the fact that there may be a long history of symptoms and no evidence of acute environmental stress.

It would appear that a high proportion of the personality group, who are referred by courts and social welfare agencies, are considered as poor risks for psychiatric treatment. It is nonetheless difficult to believe that the clinician can be accurate in his diagnosis after so brief an exposure to the patient. The statistics may indicate a personal bias against this class of patient who most frequently come from broken homes and deprived environments.

The frequent complaint of clinicians as to the difficulty of classifying children within the standard system may account for some of the variability within the psychogenic disorders. The clinician apparently feels forced to make a diagnostic choice among categories, none of which fits precisely. It may be that the blurred distinction between these groups results from the failure of the diagnostic protocol to allow for specification of family pathology which may be a more important determinant of outcome than the current psychiatric status of the child.

A useful approach to an examination of the validity of diagnostic differentiation is the accumulation of follow-up data on the subsequent course of patients within each of the rubrics. If there is a clear difference between the outcome of diagnostic categories, then we can have greater confidence in their validity. We hope to obtain such information systematically through a statewide psychiatric case register in Maryland. Through this device we will be able to study the psychiatric course and changes in diagnosis of every patient who has a subsequent admission to any psychiatric facility in the state.

#### REFERENCES

1. DIAGNOSTIC AND STATISTICAL MANUAL, MENTAL DISORDERS, (Washington, D.C. American Psychiatric Association, 1952.) 130 pp.
2. MENTAL HEALTH CLINIC STATISTICS [Conference Report] *Public Health Reports*, Vol. LXIX (October, 1954), pp. 1008-1011.



3. A. K. Bahn and V. B. Norman, First National Report on Patients of Mental Health Clinics, *Public Health Reports*, Vol. LXXIV (November, 1959), pp. 943-956.

4. A. K. Bahn, **METHODOLOGICAL STUDY OF A POPULATION OF OUTPATIENT PSYCHIATRIC CLINICS, MARYLAND 1958-1959**, (Public Health Service Publication No. 821 [Public Health Monograph No. 65] ), (Washington, D.C., U.S. Government Printing Office, 1961.) 105 pp.

5. A. K. Bahn, C. A. Chandler and L. Eisenberg, Diagnostic and Demographic Characteristics of Patients Seen in Outpatient Psychiatric Clinics for an Entire State (Maryland): Implications for the Psychiatrist and the Mental Health Program Planner, *American Journal of Psychiatry*, Vol. CXVII (March, 1961), pp. 769-778.

6. United States National Institute of Mental Health, **A MANUAL ON RECORD-KEEPING AND STATISTICAL REPORTING FOR MENTAL HEALTH CLINICS** [Public Health Service Publication No. 539], (Washington, D.C., U.S. Government Printing Office, 1957.) 72 pp.

7. A. K. Bahn and C. A. Chandler, The Application of Lifetable Methodology to the Study of Outpatient Psychiatric Services, *Journal of Chronic Diseases*, Vol. XV (January, 1962), pp. 71-83.

8. **MENTAL DEFICIENCY—THE CHANGING OUTLOOK** (A.M. and A.D.B. Clarke, Eds.), (Glencoe, Illinois, The Free Press, 1959.) 513 pp.

## APPENDIX

An extended discussion of the life table methodology used in this report is given in Reference 4, Appendix IV, but a brief review of the procedures will be given here, based upon Appendix Table 1, which is the "life table" for the total population of 4,816 admissions under twenty years of age.

The information on entry and termination of each admission was given in calendar months, and to utilize the life table analysis this had to be converted to exact thirty-day intervals after admission. The method used was to partition by one-half the number who leave in each calendar month after admission except the first, and add this to one-half the departures during the preceding month. The justification for this procedure is given in Reference 4.

The definitions and derivations of each column of Appendix Table 1 are as follows:

$x$ —Col. 1 number of months (30 days) following admission.

$t_x$ —Col. 3 number receiving final interview during the  $x^{\text{th}}$  calendar month after month of admission.

$t'_x$ —Col. 4  $t'_x = \frac{1}{2} (t_x + t_{x+1})$ —estimated number receiving final

Appendix Table 1. Work table for computing probability of receiving final interview during specified month following admission, Maryland residents under age 20 admitted to Maryland outpatient psychiatric clinics, July 1, 1958 to Dec. 31, 1959.

NUMBER OF MONTHS FOLLOWING ADMISSION	NUMBER UNDER OBSERVATION AT THE BEGINNING OF THE x <sup>th</sup> MONTH EXACT	NUMBER RECEIVING FINAL INTERVIEW DURING THE x <sup>th</sup> CALENDAR MONTH AFTER ADMISSION	ESTIMATED NUMBER RECEIVING FINAL INTERVIEW DURING THE x <sup>th</sup> EXACT MONTH AFTER DATE OF ADMISSION	NUMBER WITHDRAWN FROM OBSERVATION ON MARCH 31, 1960, BY SPECIFIED DURATION	PROBABILITY, IF RETAINED TO THE BEGINNING OF THE MONTH, OF—		PROBABILITY OF STARTING COHORT		
					RECEIVING FINAL INTERVIEW during Month	NOT RECEIVING FINAL INTERVIEW during Month	NOT RECEIVING FINAL INTERVIEW by End of Month	RECEIVING FINAL INTERVIEW during This or a Preceding Month	RECEIVING FINAL INTERVIEW during This Month
1	2	3	4	5	6	7	8	9	10
x	$N_x = N_{x-1} - t_{x-1} - w_{x-1}$	$t_x$	$t'_x = \frac{t_x + t_{x+1}}{2}$	$w_x$	$q_x = \frac{t'_x}{N_x - \frac{1}{2}w_x}$	$p_x = 1 - q_x$	$l_{x+1} = \prod_{i=0}^x p_i$	$Q_{x+1} = 1 - \prod_{i=0}^x p_i$	$s_x = Q_{x+1} - O_x$
0	4,816.0	2,417.0	2,750.0	0.	.5710	.4290	.4290	.5710	.5710
1	2,066.0	666.0	533.0	0.	.2580	.7420	.3183	.6817	.1107
2	1,533.0	400.0	341.0	0.	.2224	.7776	.2475	.7525	.0708
3	1,192.0	282.0	226.0	87.0	.1968	.8032	.1988	.8012	.0487
4	879.0	170.0	146.0	60.0	.1720	.8280	.1646	.8354	.0342
5	673.0	122.0	92.5	58.0	.1436	.8564	.1410	.8590	.0236
6	522.5	63.0	59.5	43.0	.1188	.8812	.1242	.8758	.0167
7	420.0	56.0	48.5	30.0	.1198	.8802	.1094	.8906	.0149
8	341.0	41.0	40.0	21.0	.1208	.8792	.0961	.9039	.0133
9	280.5	39.0	30.0	23.0	.1115	.8885	.0854	.9146	.0107
10	227.5	21.0	18.0	22.0	.0831	.9196	.0783	.9217	.0071
11	187.5	15.0	16.5	22.0	.0935	.9065	.0710	.9290	.0073
12	149.0	18.0	13.0	15.0	.0919	.9081	.0645	.9355	.0065
13	121.0	8.0	8.0	21.0	.0724	.9276	.0598	.9402	.0047
14	92.0	8.0	6.0	20.0	.0732	.9268	.0554	.9446	.0044
15	66.0	4.0	3.0	6.0	.0476	.9524	.0528	.9472	.0026
16	57.0	2.0	1.5	8.0	.0283	.9717	.0513	.9487	.0015
17	47.5	1.0	1.0	14.0	.0247	.9753	.0500	.9500	.0013
18	32.5	1.0	0.5	12.0	.0189	.9811	.0491	.9509	.0009
19	20.0	0.	0.	6.0	0.	1.0000	.0491	.9509	0.
20	14.0	0.	—	14.0	0.	—	—	—	—
TOTAL	4,334.0	4,334.0	—	482.0	—	—	—	—	—

interview during the  $x^{\text{th}}$  exact month (30 days) after date of admission. An exception is made for the first month for which  $t'_0 = t_0 + \frac{1}{2}t_1$ . This is the partitioning procedure noted above.

$w_x$ —Col. 5 number withdrawn from observation on March 31, 1960, because they had not received their final interview by this date, by specified number of months since admission. Since all had been admitted before December 31, 1959, they had at least a three-month interval since admission.

$N'_x$ —Col. 2  $N'_x = N'_{x-1} - t'_{x-1} - w_{x-1}$ —number under observation at the beginning of the  $x^{\text{th}}$  exact month (30 days).  $N_0$  = the total number admitted during the period July 1, 1958–December 31, 1959.

$q_x$ —Col. 6  $q_x = t'_x / (N'_x - \frac{1}{2} w_x)$  = probability, if retained to the beginning of the month, of receiving final interview during the month, i.e. this is the estimated proportion of those under observation at beginning of the month, less one-half of those withdrawn from observation during the month, following the partitioning procedure, who received a final interview during the month (30 days).

$p_x$ —Col. 7  $p_x = 1 - q_x$  = probability if retained to the beginning of the month of not receiving a final interview during the month.

$1_{x+1}$ —Col. 8  $1_{x+1} = p_0 \cdot p_1 \cdot p_2 \cdots p_x = 1_x \cdot p_x$  = probability of starting cohort not receiving interview by end of month (30 days). This is the estimated proportion of the starting cohort still under treatment at the end of each month, and, converted to a percentage, is the data shown in the tables of this report dealing with retention.

$Q_{x+1}$ —Col. 9  $Q_{x+1} = 1 - 1_{x+1}$  = probability of starting cohort receiving final interview during this or a preceding month (30 days). This is the estimated proportion of the starting cohort whose treatment had been terminated by the end of this month (30 days).

$s_x$ —Col. 10  $s_x = Q_{x+1} - Q_x$  = probability of starting cohort receiving final interview during this month (30 days).

As an example of the derivation of the values in each column, consider the line for  $x = 4$ :

Appendix Table 2. Work table for computing percentage distribution, by service category, of admissions with final interview within 18 months of admission, Maryland residents under 20 years of age admitted to Maryland outpatient psychiatric clinics, July 1, 1958 to December 31, 1959.

SERVICE CATEGORY	TOTAL 0-18 MONTHS	MONTH AFTER ADMISSION												
		0	1	2	3	4	5	6	7	8	9	10	11	12-17
A. Percentage distribution of patients who receive final interview during specified month (30 days) after admission, by type of service received.														
Total (t <sub>2</sub> )	4,333.50	2,750.0	533.0	341.0	226.0	146.0	92.5	59.5	48.5	40.0	30.0	18.0	16.5	32.5
Treated	20.91	5.30	22.63	29.77	41.15	54.11	55.68	69.75	80.41	83.75	81.67	86.11	78.79	72.72
Improved	14.03	2.90	13.43	20.53	26.55	35.62	45.95	55.46	57.73	58.75	60.00	69.44	57.58	48.48
Not Improved or Worse	6.88	2.40	9.20	9.24	14.60	18.49	9.73	14.29	22.68	25.00	21.67	16.67	21.21	24.24
Evaluation Services Only	79.06	94.69	77.37	70.23	58.85	45.89	44.33	30.25	19.58	16.25	18.33	13.89	21.21	27.28
Psychiatric Service	48.32	50.37	63.19	57.33	46.90	35.96	35.68	25.21	16.49	15.00	13.33	8.33	18.18	25.76
Psychological Service														
Only	19.80	28.24	9.58	8.06	8.63	9.59	7.03	0.84	0	1.25	3.33	2.78	3.03	1.52
Other Professional														
Service Only	10.80	16.03	4.41	4.55	3.10	0.34	1.62	2.52	1.03	0	1.67	2.78	0	0
Service Unknown	0.14	0.05	0.19	0.29	0.22	0	0	1.68	2.06	0	0	0	0	0
B. Estimated per cent of starting cohort who receive their final interview during specified month (30 days) after admission and receive a specified type of service.														
Total terminated (6 <sub>2</sub> )	95.00	57.10	11.07	7.08	4.87	3.42	2.36	1.67	1.49	1.33	1.07	0.71	0.73	2.10
Treated	19.87	3.02	2.51	2.10	2.00	1.85	1.32	1.17	1.20	1.11	0.87	0.61	0.58	1.53
Improved	13.33	1.65	1.49	1.45	1.29	1.22	1.09	0.93	0.86	0.78	0.64	0.49	0.42	1.02
Not Improved or Worse	6.54	1.37	1.02	0.65	0.71	0.63	0.23	0.24	0.34	0.33	0.23	0.12	0.16	0.51
Evaluation Services Only	75.11	54.06	8.56	4.97	2.86	1.57	1.05	0.50	0.30	0.22	0.20	0.10	0.15	0.57
Psychiatric Service	45.90	28.76	6.99	4.06	2.28	1.23	0.84	0.42	0.25	0.20	0.14	0.06	0.13	0.54
Psychological Service														
Only	18.81	16.12	1.06	0.57	0.42	0.33	0.17	0.01	0	0.02	0.04	0.02	0.02	0.03
Other Professional														
Service Only	10.26	9.15	0.49	0.32	0.15	0.01	0.04	0.04	0.02	0	0.02	0.02	0	0
Service Unknown	0.14	0.03	0.02	0.02	0.01	0	0	0.03	0.03	0	0	0	0	0

$$N'_4 = 879 = 1192 - 226 - 87$$

$$\text{where } t'_3 = \frac{1}{2}(282 + 170) = 226$$

$$N'_3 = 1192 \text{ and } w_3 = 87$$

$$q_4 = .1720 = 146 / (879 - \frac{1}{2} \cdot 60)$$

$$\text{where } t'_4 = \frac{1}{2}(170 + 122) = 146$$

$$\text{and } w_4 = 60$$

$$p_4 = 1 - .1720 = .8280$$

$$l_5 = (.4290) (.7420) (.7776) (.8032) (.8280) = .1646$$

where these are the values of  $p_0, p_1, p_2, p_3$  and  $p_4$ ;

$$\text{or } l_5 = .1646 = (.1988) (.8280)$$

$$\text{where } l_4 = .1988 \text{ and } p_4 = .8280$$

$$Q_5 = 1 - .1646 = .8354$$

$$s_4 = .8354 - .8012 = .0342$$

$$\text{where } Q_4 = .8012$$

The probability study of services received requires the computation of the compound probability ( $s_{x_j}$ ) of receiving the final interview during the  $x^{\text{th}}$  month (30 days) after admission *and* of receiving a specified type of service, number of interviews or disposition. From these probabilities, a weighted frequency distribution of all those who leave during the first eighteen months, by a particular characteristic, is derived. As an example, the derivation of this distribution by type of service is shown in Appendix Table 2. The steps are:

(a) The decrement function ( $t_x$ ) (Col. 3 of Appendix Table 1) is classified into subcategories ( $t_{x_j}$ ) according to number of interviews, disposition or, as in this example, type of service.

(b) Data are estimated for 30-day months ( $t'_{x_j}$ ) which add to the  $t'_x$  in Col. 4 of Appendix Table 1. These are shown on the first line of Part A of the table. Because of small numbers, the  $t'_{x_j}$  for 12-18 months are combined.

(c) A percentage distribution of the  $t'_x$  by service category ( $t'_{x_j}$ ) is obtained for each month (30 days). (See Part A of Appendix Table 2). The first (total) column of this table is not completed until the last step.

(d) This percentage, or with the decimal moved two places to the left, the proportion,  $\frac{t'_{x_j}}{t'_x}$ , is considered as a conditional probability,

i.e., that if a patient leaves in a specified month he will have received a specified service. This conditional probability is multiplied by the marginal probability of receiving the final interview during the month,  $s_x$ , given on the first line of Part B of the table from Column 10 of Appendix Table 1, to obtain the appropriate compound probability,  $s_{xj}$ :

$$s_{xj} = \frac{t'_{xj}}{t'_x} s_x$$

These compound probabilities (with the decimal moved two places to the right) are shown in Part B of Appendix Table 2 as percentages of the starting cohort. They are derived by multiplying the percentage from the corresponding cell in Part A by the  $s_x$  for that column. For example, the 2.51 per cent of the starting cohort terminated between the first and second month after admission and treated is computed from  $(22.63) \cdot (11.07) = 2.51$  where 22.63 is the per cent of terminations one month after admission who were treated, and 11.07 is  $s_1$ , the percentage of the original cohort terminated between the first and second month after admission.

(e)  $Q_{18j}$ , the probability of receiving the final interview any time within the first 18 months after admission and of receiving a specified type of service, number of interviews, or disposition, is obtained by summing the  $s_{xj}$  for 18 months:  $Q_{18j} = \sum_{x=0}^{17} s_{xj}$ . This summation is shown in the first (total) column of Part B of Appendix Table 2. *The percentage distribution of this column represents a weighted distribution of the  $t'_{xj}$  using the  $s_x$  as the weights* and is shown in the first (total) column of Part A. For example, 20.91, the weighted percentage treated, equals  $(19.87/95.00) \cdot 100$ . This weighted percentage distribution, by service category, of admissions with final interview in the first 18 months forms the basis for the tables and charts on type of service, number of interviews, and disposition.