

CHARACTERISTICS OF PSYCHONEUROTIC PATIENTS AND THEIR FAMILIES AS REVEALED IN A GENERAL MORBIDITY STUDY¹

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THE longitudinal observation of a sample of the white families living in the original Eastern Health District of Baltimore made it possible to study both prevalence and incidence of chronic conditions in these families. The purpose of this paper is to give a description of the amount of certain mental disorders that were reported by the family informants. Emphasis is placed particularly on a description of the persons who were reported as having a psychoneurosis or chronic nervousness and a study of their families.

DATA AND METHOD OF STUDY

Briefly, the method of study was as follows: Families living in thirty-four city blocks were visited at monthly intervals to obtain a record of illness among their members. In seventeen of the thirty-four city blocks the families were visited over a period of five years; in the other seventeen, visiting was continued for only three years in families where no chronic conditions were reported during that period. In these blocks, visiting was continued for the five-year period in families which reported the presence of some chronic illness among their members.

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Careful inquiry was made concerning members of the family who were in institutions for the mentally ill, for the feeble-minded, and for other chronic conditions requiring institutional care.

The instructions for the use of the family visitors contained a list of the more common chronic diseases about which special inquiry was to be made. This special information included date of onset of the first symptoms of the disease, their nature and date, the date first diagnosed, and whether the diagnosis was made by a private physician, at a clinic, or at a hospital. Illnesses that were reported as chronic were asked about on each subsequent visit to the family. Inquiry was made concerning the amount of discomfort and disability suffered from the condition since the last visit and the amount of medical care received for it.

The causes of chronic illness as reported by the family informants were submitted to the attending physicians for confirmation or correction. The cases which had clinic attendance and those which had hospital admissions were also checked against the records of the clinic or hospital where the service was given. The only exception to this procedure was for cases hospitalized outside the city of Baltimore.

The chronic conditions included in this analysis are the psychoneuroses and the complaint of chronic nervousness.

In a study of the complaint of nervousness and the psychoneuroses in the population of the original Eastern Health District of Baltimore, made by Lemkau and his associates, it was concluded that,

. . . The lay term nervous is used to cover a multitude of psychiatric conditions, but when treated as a residual group, after the removal of known psychotics and mental defectives, this group corresponds in sex and race distribution patterns to the group of adult cases diagnosed as psychoneurosis or as having neurotic traits (5).

This was considered as sufficient reason for including nervous cases in a group called the "adult neurotic group." Therefore,

in the present analysis, persons with the complaint of chronic nervousness have been included with those who had a physician's diagnosis of some type of psychoneurosis.

COMPARISON OF SAMPLE WITH THE TOTAL DISTRICT

It is of interest to compare the results obtained from the study of a sample of the white families in the Eastern Health District with those obtained by Lemkau and his associates in a survey of the entire white population of the district. The observation of the sample population was over the period from June, 1938, to May, 1943. The mental hygiene survey of the entire district was made in 1936. A brief description of the method of this survey may be cited:

. . . Suffice it to say, that information concerning mental deviants was collected from a great variety of sources—hospitals, clinics, courts, social agencies, etc.—and that it was possible to verify the residence of the great majority of the cases found by identification in the household rosters of the National Health Survey. The N.H.S. was also the source of additional cases³ (7).

Family reporting of cases was the method used in the continued survey of the sample of white families.

Table 1 shows the prevalence of psychosis and of psychoneurosis among white persons found in the two studies. These are annual rates per 1,000 population. The difference in the rates of psychosis cannot be interpreted as real because the enumeration made by the National Health Survey in 1936 did not include persons who had been institutionalized for more than twelve months. In the study of the sample of families these cases were included. It is possible to adjust the rate of psychosis in the sample of families by exclusion of those persons who had been in an institution for mental disorder for more than twelve months prior to the first visit to the family. The rate thus obtained, 3.7 per 1,000 person years, is precisely the same as that noted for the entire Eastern Health District

³ The National Health Survey was made during the winter months of 1935-1936 and included the entire original Eastern Health District.

in 1936. The rates of psychoneurosis obtained in the two studies were also strikingly similar.

Such precise agreement in prevalence rates obtained by

Table 1. Prevalence of cases of mental disorder in a sample of white families in the Eastern Health District observed during the period June, 1938–May, 1943, and in the total white population of the Eastern Health District in 1936.¹

TYPE OF DISORDER	SAMPLE OF FAMILIES FROM THE EASTERN HEALTH DISTRICT ²	TOTAL EASTERN HEALTH DISTRICT (WARDS 6 AND 7) ²
	Annual Rate per 1,000 Population	
Psychosis	5.3	3.7
Psychoneurosis ³	15.1	15.0

¹ The population of the sample of families included 20,832 person-years of life. The white population of the total district numbered 42,422 in 1936.

² Cases which had been institutionalized for more than twelve months were not included in the enumeration made by the National Health Survey in 1936. In the study of the sample of families such cases have been included.

³ Psychoneurosis includes adult neurotics, psychopathic personalities and adult behavior deviates, and children with behavior disorder.

different methods of collecting records of psychotics and psychoneurotic persons at different times in a population is no doubt in part accidental. However, there is internal evidence as to the similarity of the data. In both studies the rates for male and female psychotics were about equal. In the study made in the entire district, females formed 73 per cent of the total psychoneurotics in the white population. In the sample of families, females constituted 71 per cent of this group. When children with behavior problems are included with the psychoneurotics, as was done in Table 1, they formed fairly similar proportions of the total in each study.⁴

Another point of interest brought out by Table 1 is the fact that the rate of psychoneurosis was about three times as great as that for psychosis. A different method of study of a population would no doubt give entirely different results. For example, psychiatric examination of an entire population would probably indicate that the rate of psychoneurosis is much higher than the rate obtained through reports of illness by a

⁴ For a full explanation of the method of computing rates of prevalence of chronic illness in the study of the sample of families in the Eastern Health District, see Downes (3).

family informant. Rennie has said, "The psychoneuroses constitute the bulk of every general medical practice. By conservative estimate 60 per cent of all the patients who go to private physicians suffer not from organic diseases but from psychoneurotic conditions." (6)

PSYCHONEUROSIS AND NERVOUSNESS

Since the psychoneuroses and chronic nervousness ranked fourth in both prevalence and incidence among types of chronic illness in the study of illness in the Eastern Health District of Baltimore, emphasis has been placed upon these illnesses (2).

The data include ninety-two persons, aged 20 or older, who were classed as psychoneurotic or as having the complaint of chronic nervousness. It should be explained that in a morbid-

Table 2. Diagnoses by a nonspecialist private physician or at a nonpsychiatric medical clinic compared with family statement of complaint, Eastern Health District of Baltimore, June, 1938-May, 1943.

Part 1

FAMILY STATEMENT OF COMPLAINT	PHYSICIAN AND CLINIC DIAGNOSES					
	Total Cases	Psycho- neurosis	Neu- ras- thenia	Anxiety State; Anxiety Neurosis	Neurotic- functional Neurosis	Nerv- ous- ness
TOTAL	41	14	6	7	7	7
Nervous Only	8	3	1			4
<i>Nervous With:</i>						
Indigestion	3	1		1		1
Heart Trouble	1			1		
Low Blood Pressure	3	1			1	1
High Blood Pressure	1	1				
Menopause	1				1	
Headache	1	1				
Other Complaints ¹	5	1	2	1	1	
Nervous Breakdown	3	1		1	1	
<i>Nervous Breakdown With:</i>						
High Blood Pressure						
Other Complaints ²	3	1	1			1
Heart Trouble	3		1	1	1	
Shell Shock	1	1				
Other Complaints ³	8	3	1	2	2	

Part 2

FAMILY STATEMENT OF COMPLAINT	PHYSICIAN AND CLINIC DIAGNOSES						
	Total Cases	Gastric Neurosis; Psycho-neurotic Indigestion	Neuro-Circulatory Asthenia; Cardiac Neurosis	Constitutional Psycho-pathic State	Nervous Break-down	Neuro-dermatitis	Hysteria
TOTAL	14	5	4	1	2	1	1
Nervous Only	1			1			
<i>Nervous With:</i>							
Indigestion	5	4					1
Heart Trouble	2		2				
Low Blood Pressure							
High Blood Pressure							
Menopause							
Headache							
Other Complaints ¹							
Nervous Break-down	1				1		
<i>Nervous Breakdown With:</i>							
High Blood Pressure	1				1		
Other Complaints ²							
Heart Trouble	2	1	1				
Shell Shock							
Other Complaints ³	2		1			1	

¹ Includes nervous with weakness, giddiness, stuttering, run-down condition, and anemia.
² Includes nervous breakdown with lump in throat and shakiness, pains in stomach, and melancholy, weakness, and heart attack.
³ Includes nervous with run-down condition, gnawing pain in side, low blood pressure, pressure on nerve in head, kidney and heart condition, worry, loss of weight, faintness, dizziness, and itching all over.

ity survey such as that conducted in the Eastern Health District of Baltimore, persons do not report themselves as suffering from a psychoneurotic illness. They report their illness in terms of complaints or symptoms. The diagnosis comes from the attending physician. Sixty-six of the ninety-two cases, or 74 per cent, had such a diagnosis. The remaining twenty-six

patients complained of chronic nervousness but were not seen by a physician for this complaint.

It is of interest to indicate the terms used by the family informant in reporting the illness of the ninety-two persons classified as psychoneurotic. The complaints of the sixty-six cases who had a physician's diagnosis were reported as "nervous" or "bad nerves" with:

Bad heart	Loss of voice
Rapid heartbeat	Nervous throat
Heart trouble	Lump in throat
Cardiac neurosis	Menopause
Low blood pressure	Headache
High blood pressure	Indigestion
Shortness of breath and choking	Melancholy
Weakness and run down	Worry
Giddiness and dizzy spells	Itching all over

The complaints of the twenty-six not seen by a physician were similar to those who received a diagnosis.

Only eleven of the sixty-six cases with a physician's diagnosis were seen by a psychiatrist or visited a psychiatric clinic. The remaining fifty-five cases were diagnosed by a nonspecialist private physician or were diagnosed at a nonpsychiatric medical clinic. Table 2, Parts 1 and 2, shows a comparison of the physician and clinic diagnosis with the family's statement of the complaint. Part 1 of Table 2 shows the data for forty-one cases, and Part 2 shows the data for fourteen cases. Fourteen of the total cases were diagnosed as "psychoneurosis" with no indication as to type. Seven were given the vague classification of "nervousness," and two the classification of "nervous breakdown." These were instances where the physician checked the family statement as to the nature of the illness and did not give a more specific diagnosis.

An interesting point brought out by Table 2 is that a total of nine persons reported themselves as having heart trouble or heart attacks. None of them was found to have heart trouble.

The same was true for the two cases who reported nervousness with high blood pressure.

Table 3 shows the psychiatric diagnosis in comparison with the family statement of illness for the eleven cases who were seen by a psychiatrist or at a psychiatric clinic. The family statements as to the nature of the illness are similar to those shown in Table 2.

The twenty-six cases who had the complaint of chronic nervousness but were not seen by a physician for this illness

Table 3. Diagnoses made in a psychiatric clinic compared with family statements of illness, Eastern Health District of Baltimore, June, 1938-May, 1943.

PSYCHIATRIC DIAGNOSES	FAMILY STATEMENT OF COMPLAINT					
	Total	Nervous Only; Nervous Spells; Nervous Attack	Nervous with Indigestion or Intestinal Complaints	Nervous Break-down	Nervous with Shortness of Breath, Choking	Nervous with Other Symptoms
ALL DIAGNOSES	11	3	3	1	2	2
Anxiety Neurosis and Anxiety Attacks	4	1	1		1	1 ^a
Anxiety Symptoms Featuring Gastrointestinal and Respiratory Tracts	1				1	
Alcoholism	1		1			
Gastrointestinal Neurosis	1		1			
Hysterical Aphonia	1					1 ^b
Neurasthenia	1			1		
Psychoneurotic Personality and Neurasthenia	1	1				
Neuropathic Constitution	1	1				

^a Nervous with nervous throat and dizzy spells, pains in head.

^b Nervousness and loss of voice.

were similar to those who had a medical diagnosis. These data are presented in Table 4.

It seems reasonable to conclude that, in studies of morbidity, persons who report chronic nervousness may properly be classed as suffering from a psychiatric condition. This is the same conclusion previously drawn by Lemkau from his study of cases with the complaint of nervousness.

CHARACTERISTICS OF PERSONS CLASSED AS PSYCHONEUROTIC

Study of the morbidity experience of persons over a period of time affords the unusual opportunity of describing certain characteristics of different segments of the population in comparison with the total population from which the segments are drawn. The illness experience of persons classified as psychoneurotic is one characteristic that is of interest.

Acute Illness. Table 5 shows the actual number of minor respiratory illnesses, accidental injuries, and all other acute illnesses suffered by the adult males and females who reported chronic nervousness, compared with the expected number of such illnesses. The expected number of illnesses was obtained by applying the attack rates for the total sample population at specific ages to the person-years of observation of the psychoneurotics at the same ages. Person-years for the psychoneurotics are shown by age in Table 6.

The ratio of the actual number to the expected number of illnesses is also shown in Table 5 for each type of illness among males and females. The actual number of illnesses suffered by

Table 4. Family statements of illness for cases with no physician's diagnosis, Eastern Health District of Baltimore, June, 1938-May, 1943.

FAMILY STATEMENTS OF COMPLAINTS	TOTAL
TOTAL	26
Nervous Only, Bad Nerves, Nervous Attacks or Spells	11
<i>Nervous With:</i>	
Indigestion	3
Headache	1
Menopause	1
High Blood Pressure	1
Other Symptoms ¹	5
Nervous Breakdown	3
Alcoholism	1

¹ Includes nervous with: prolonged grief, hysterics, depression, fear, shock, weakness, pains in the back, worry, dizziness, nausea, ringing in ears.

AGE GROUP	MALES			FEMALES		
	Actual Number	Expected Number	Ratio of Actual to Expected	Actual Number	Expected Number	Ratio of Actual to Expected
RESPIRATORY ILLNESS						
TOTAL: Age						
20+	37	26.54	1.39	221	134.57	1.64
20-34	20	9.73	2.06	104	50.66	2.05
35-54	13	10.37	1.25	95	64.82	1.47
55+	4	6.44	0.62	22	19.09	1.15
ACCIDENTAL INJURIES						
TOTAL: Age						
20+						
20-34	11	6.57	1.67	53	25.90	2.05
35-54	5	2.49	2.01	16	5.81	2.75
55+	3	2.51	1.20	33	14.97	2.20
	3	1.57	1.91	4	5.12	0.78
ALL OTHER ACUTE ILLNESS						
TOTAL: Age						
20+	20	15.34	1.30	198	116.61	1.70
20-34	5	5.35	0.93	65	42.82	1.52
35-54	10	5.74	1.74	109	59.64	1.83
55+	5	4.25	1.18	24	14.15	1.70

Table 5. Ratio of the actual number to the expected number of respiratory illnesses, accidents, and all other acute illnesses among ninety-two cases of psychoneurosis, classified by age and sex, Eastern Health District of Baltimore, June, 1938-May, 1943.

this population showed a considerable excess over the expected number. The excess was especially marked in accidental injuries. Another interesting point brought out by this table is

Table 6. Person-years at risk of illness for ninety-two cases of psychoneurosis, classified by age and sex.

AGE GROUP	BOTH SEXES	MALES	FEMALES
ALL AGES	284	70	214
20-34	97	23	74
35-54	138	31	107
55+	49	16	33

the fact that young adults, persons under 35, were especially affected. These data are based upon small numbers but the consistency of the results among both males and

females, and for each illness category, leads some significance to them. Furthermore, the excess of illness suffered by psychoneurotics will not be surprising to those who have dealt with such patients. For example, accident-proneness is recognized as having a psychoneurotic basis.

Chronic Illness. At the beginning of observation, fourteen of the ninety-two persons with the complaint of chronic nervousness had also another chronic condition. During observation thirteen other persons developed an additional chronic condition. These data are shown in Table 7. It is noteworthy that 4 developed hypertensive vascular disease. Their ages were as follows: females, 24, 49, and 52; male, aged 24. Chronic gallbladder disease was diagnosed in a female aged 30. A male, aged 53, developed coronary disease. The ages of those who developed arthritis were: females, 32, 36, and 47; and a male aged 60.

These data indicate that some persons who complained of chronic nervousness were affected at a relatively young age by conditions commonly associated with middle and old age. Seven of the thirteen who had a new diagnosis during observa-

Table 7. Chronic conditions among ninety-two persons classed as psychoneurotic or as having chronic nervousness.

CLASSIFICATION	NUMBER OF PERSONS	NUMBER OF CASES THAT HAD ONSET PRIOR TO OBSERVATION	NUMBER OF CASES THAT HAD ONSET OR FIRST DIAGNOSES DURING OBSERVATION
TOTAL WITH OTHER CHRONIC CONDITION	27	14	13
Arthritis	11	7	4
Cardiovascular Disease	3	2	1
Hypertensive Vascular Disease	4	0	4
Diabetes	3	3	0
Gallbladder Disease	3	2	1
Tuberculosis	1	0	1
Peptic Ulcer	1	0	1
Pyelonephritis	1	0	1

tion were under 40 years of age. These persons, then, appear to constitute a group especially susceptible to certain conditions. Hypertensive vascular disease may be used as an illustration. The annual incidence of new or first diagnoses of hypertensive vascular disease among the adult males and females in the total population was 2.94 and 5.47 per 1,000, respectively. If these rates be applied to the person-years of the psychoneurotics, only 1.38 cases would be expected in this population instead of a total of four which did occur.

The illness experience of the ninety-two adult psychoneurotic persons in the sample population drawn from the Eastern Health District of Baltimore indicates that they form a special group. Their risk of suffering accidents and attacks of acute illness was considerably greater than for the general population in most age groups. Their risk of developing other chronic illnesses was also great. In addition, it is important to note that these persons were for the most part in the age groups considered most productive, that is, not in the old age group. For that reason this would appear to be a group of persons where the application of psychiatric treatment could act as a measure of prevention of both acute and chronic illness.

In conclusion, this point should be stressed: there has been no effort in this study to include all persons suffering from illnesses, some of which are presumed to have a psychosomatic basis, such as cases of peptic ulcer, rheumatoid arthritis, colitis, thyrotoxicosis, diabetes mellitus, bronchial asthma, and migraine. The nature of the data obtained in the general morbidity study does not permit classification of all of these illnesses with regard to whether they were preceded or were accompanied by psychoneurotic reactions.

FAMILY PATTERN OF CHRONIC ILLNESS

The study of chronic illness in the Eastern Health District of Baltimore has also made it possible to investigate family patterns of illness (1, 4). An index case was designated for each family with a member who had a "major chronic" illness—that is, the index case was the person with a chronic condi-

tion which determined the classification of the family.⁵ In families where, at the time of first observation, there was more than one living case, the one with the earliest onset was selected as the index person. It was then possible to learn whether other members of the family tended to have the same type of chronic illness as did the index case.

During the period of study of the families in the thirty-four city blocks in the Eastern Health District, a total of 828 families reported one or more cases of chronic illness. The shortest possible period of observation of these families was two months and the longest possible period was five years. Excluding the index case, these families contained 2,842 other family members.

The ninety-two adult psychoneurotics have been shown to form a special and unique group with respect to the amount of acute and chronic illness among them. It seems logical then to investigate as far as possible certain characteristics of the family environment of these persons. Therefore, this part of the analysis deals with the families of the adult psychoneurotics in comparison with the total universe of 828 families with chronic disease from which they were drawn.

SOCIAL CHARACTERISTICS OF THE CHRONIC DISEASE FAMILIES

Before examination of the social characteristics of the families, it is of interest to consider the position of the index case. In only 11 per cent of the 828 families was the index case a person under 20 years of age. When these families are excluded, in 81 per cent of the remaining families the index case was either the head of the household or the wife. In the ninety families where an adult psychoneurotic was the index case, the head of the household or the wife constituted 80 per cent of the total index cases.

⁵ The category "major chronic" illness includes the following conditions: heart disease, hypertension or high blood pressure, arthritis, tuberculosis, diabetes, chronic nephritis, rheumatic fever, varicose veins, chronic gallbladder disease, syphilis, malignant neoplasm, peptic ulcer, toxic goiter, epilepsy, mental deficiency, psychosis, psychoneurosis and chronic nervousness, and other important but relatively rare conditions, such as Parkinson's disease, cerebral palsy, multiple sclerosis, aplastic anemia, and pernicious anemia.

AGE GROUP	INDEX CASE PSYCHO- NEUROSIS (90 FAMILIES)	INDEX CASE MAJOR CHRONIC DISEASE (828 FAMILIES)	INDEX CASE PSYCHO- NEUROSIS (90 FAMILIES)	INDEX CASE MAJOR CHRONIC DISEASE (828 FAMILIES)
	Percentage		Number	
ALL AGES	100.0	100.0	315	2,842
0-9	22.54	19.67	71	559
10-19	22.86	21.64	72	615
20-34	23.49	25.83	74	734
35-49	11.11	17.10	35	486
50-64	11.75	10.80	37	307
65+	8.25	4.96	26	141

Table 8. Age distribution of members of 828 families (index case major chronic disease), and ninety families (index case psychoneurosis) (all index cases excluded), Eastern Health District of Baltimore, June, 1938—May, 1943.

In most of the subsequent data which are presented, all index cases are excluded. The comparisons are made between the ninety families (index case, "adult psychoneurotic,") and the 828 chronic disease families, the universe from which they were drawn.

Individual Characteristics. The age constitution of the family members in the two groups is shown in Table 8. The differences between the two groups are not great. Size of family was also fairly similar in the two groups. Including the index case, the mean size of family was 4.5 persons in those where the index case was an adult psychoneurotic, compared with 4.4 persons per family in the total 828 families.

Table 9 shows the marital status of the members of the families in both groups after exclusion of the index case. Here both groups of families show a striking similarity. Fifty-five per cent of the family members were single, 36 to 37 per cent were married, and about 8 per cent were "divorced," "separated," or "widowed."

The two groups of families also showed a striking similarity with respect to completed education of family members 20 years of age or older. These data are shown in Table 10. From

15 to 16 per cent in each group had less than five years of schooling. The majority, 61 per cent (index case, psychoneurosis), and 58 per cent (total 828 families), had no more than an 8th-grade education. Eleven per cent in each group had a complete high school education, and a very small proportion, about 1 per cent, had some college education.

To summarize the salient points concerning the persons in the ninety families and in the 828 families from which they were drawn, from 41 to 45 per cent were under 20 years of age; marital status of these members in both groups was similar; educational attainment for members of both groups was also similar—from 75 to 76 per cent did not enter high school.

Family Characteristics. Certain family characteristics are of interest because they reveal some of the environmental conditions. Those for which data are available are: home ownership, moving status, crowding, and income.

Table 11 indicates that there was no marked difference between the two groups of families with respect to home ownership. Fifty-two per cent of the ninety families (index case

Table 9. Marital status of members of 828 families (index case major chronic disease), and members of ninety families (index case psychoneurosis), Eastern Health District of Baltimore, June, 1938–May, 1943.¹

MARITAL STATUS OF FAMILY MEMBERS	INDEX CASE PSYCHO- NEUROSIS (90 FAMILIES)	INDEX CASE MAJOR CHRONIC DISEASE (828 FAMILIES)	INDEX CASE PSYCHO- NEUROSIS (90 FAMILIES)	INDEX CASE MAJOR CHRONIC DISEASE (828 FAMILIES)
	Percentage		Number	
	TOTAL	100.0	100.0	316 ^a
Single	55.3	55.5	172	1,563
Married	36.0	37.1	112	1,046
Divorced	1.0	1.5	3	43
Separated	2.2	1.8	7	51
Widowed	5.5	4.1	17	115
Unknown Marital Status			5	39

¹ Excluding all index cases.

^a Includes 1 person, age unknown.

^b Includes 15 persons, age unknown.

EDUCATION COMPLETED	INDEX CASE PSYCHO-NEUROSIS (90 FAMILIES)	INDEX CASE MAJOR CHRONIC DISEASE (828 FAMILIES)	INDEX CASE PSYCHO-NEUROSIS (90 FAMILIES)	INDEX CASE MAJOR CHRONIC DISEASE (828 FAMILIES)
	Percentage		Number	
TOTAL	100.0	100.0	262	2,406
0-4 Years Only	15.3	16.2	35	346
5-8 Years Only	60.7	58.3	139	1,243
9-11 Years Only	11.8	12.5	27	267
12 Years or More (Includes Vocational School But Not College)	11.8	11.4	27	244
College, Some, 4 Years or More	0.4	1.6	1	34
Unknown Amount of Education	12.6	11.3	33	272

Table 10. Education completed by members, age 20+, of 828 families (index case major chronic disease), and by members of ninety families (index case psychoneurosis), Eastern Health District of Baltimore, June, 1938-May, 1943.¹

¹ Index cases excluded.

psychoneurosis or chronic nervousness) owned their homes, compared with 54 per cent of the total 828 families.

The moving status of the two groups of families was also

Table 11. Home-ownership status of 828 families (index case major chronic disease), and of ninety families (index case psychoneurosis), Eastern Health District of Baltimore, June, 1938-May, 1943.

OWNER OR RENTER	INDEX CASE PSYCHO-NEUROSIS (90 FAMILIES)	INDEX CASE MAJOR CHRONIC DISEASE (828 FAMILIES)	INDEX CASE PSYCHO-NEUROSIS (90 FAMILIES)	INDEX CASE MAJOR CHRONIC DISEASE (828 FAMILIES)
	Percentage		Number	
TOTAL	100.0	100.0	90	828
Owner	52.2	54.4	47	450
Renter	47.8	45.6	43	377
Unknown				1

MOVING STATUS OF FAMILY	INDEX CASE PSYCHO-NEUROSIS (90 FAMILIES)	INDEX CASE MAJOR CHRONIC DISEASE (828 FAMILIES)	INDEX CASE PSYCHO-NEUROSIS (90 FAMILIES)	INDEX CASE MAJOR CHRONIC DISEASE (828 FAMILIES)
	Percentage		Number	
TOTAL	100.0	100.0	90	828
Family Did Not Move	53.7	53.2	44	403
Family Moved	46.3	46.8	38	354
Family Refused to Cooperate	8.9	8.6	8	71

Table 12. Moving status of 828 families (index case major chronic disease), and ninety families (index case psychoneurosis), Eastern Health District of Baltimore, June, 1938–May, 1943.

similar—that is, family stability as reflected in moving was equal in both groups. These data are presented in Table 12.

Each family was given a “crowding” rating. Each was graded as to the number of rooms in relation to the number, age, and sex constitution of the family members. There were four categories: (1) more than adequate, (2) adequate, (3) unsatisfactory, and (4) very unsatisfactory. The description of these categories follows:

1. *More than Adequate*: More than one room for sleeping per person or per married couple plus two additional rooms (for living room and kitchen).

2. *Adequate*: One room for sleeping for each two persons of suitable age and sex plus two additional rooms (for living room and kitchen).

3. *Unsatisfactory*: One room for sleeping for each two persons of suitable age and sex plus one additional room for kitchen.

4. *Very Unsatisfactory*: Less than one room for sleeping for each two persons of suitable age and sex plus additional room for kitchen.

Instructions given for determining suitable age for sharing a sleeping room were as follows:

1. One sleeping room for two persons of opposite sex is con-

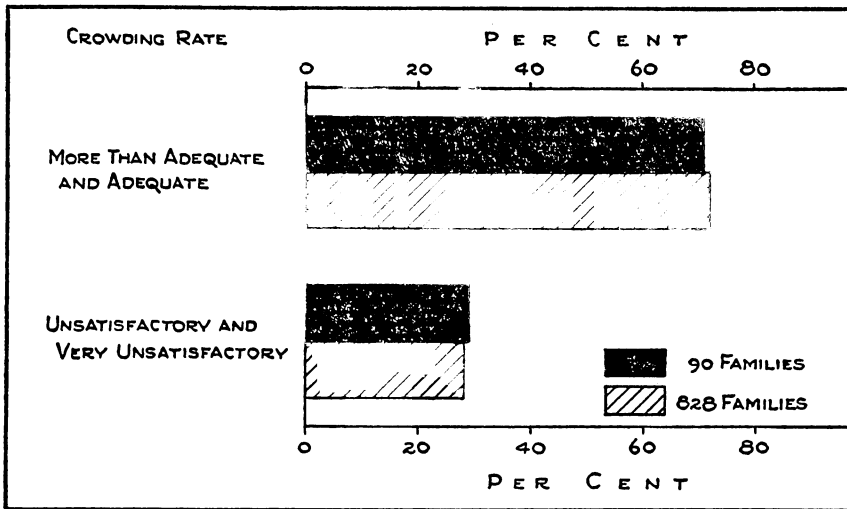


Fig. 1. Crowding rating of 828 families (index case major chronic disease) and ninety families (index case psychoneurosis), Eastern Health District of Baltimore, June, 1938–May, 1943.

sidered suitable if the two persons are married or if both are under 6 years of age.

2. *Age:* (a) A separate sleeping room is to be allowed for infants under 2 years of age, except where there is more than one infant under 2.

(b) Two persons under 20 years of age who are of the same

Table 13. Crowding rating of 828 families (index case major chronic disease), and ninety families (index case psychoneurosis), Eastern Health District of Baltimore, June, 1938–May, 1943.

CROWDING RATING	INDEX CASE PSYCHONEUROSIS (90 FAMILIES)	INDEX CASE MAJOR CHRONIC DISEASE (828 FAMILIES)	INDEX CASE PSYCHONEUROSIS (90 FAMILIES)	INDEX CASE MAJOR CHRONIC DISEASE (828 FAMILIES)
	Percentage		Number	
TOTAL	100.0	100.0	90	828
More Than Adequate	38.9	44.5	35	368
Adequate	32.2	27.6	29	228
Unsatisfactory	22.2	18.2	20	150
Very Unsatisfactory	6.7	9.7	6	80
Unknown			0	2

sex may share the same room if there is less than six years difference in their ages.

(c) Two adults who are 20 years of age or older and of the same sex may share the same sleeping room if there is less than fifteen years difference in their ages.

(d) An adult 20-25 years of age may share a room with a younger person of the same sex if there is less than six years difference in their ages.

The crowding rating, which takes into account the age and sex constitution of the family, is an attempt to arrive at a more sensitive index than is afforded by grades based on number of persons per room.

Figure 1 and Table 13 show the proportion of families in each group rated according to crowding. The groups showed no important differences. From 28 to 29 per cent were rated as unsatisfactory or very unsatisfactory and the remainder were rated as having adequate or more than adequate living space.

The annual income of the family includes money received from all sources by any member of the family. The annual income in the ninety families (index case, psychoneurosis) was \$1,405, compared with \$1,462 for the total 828 chronic disease families.⁶ These data are shown in Table 14.

An examination of socio-economic characteristics of the

Table 14. Mean income for 828 families (index case major chronic disease), and for ninety families (index case psychoneurosis), Eastern Health District of Baltimore, June, 1938-May, 1943.

TYPE OF FAMILY	MEAN INCOME	STANDARD ERROR OF THE MEAN	STANDARD DEVIATION	NUMBER OF FAMILIES
Index Case Psychoneurosis	\$1,405.84	\$108.89	\$955	77 ^a
Index Case Major Chronic Disease	\$1,462.39	\$ 37.25	\$970	678 ^b

^a Excludes 13 unknown as to income.

^b Excludes 150 unknown as to income.

⁶ These data exclude families with unknown income. Fourteen per cent of the ninety families had unknown income and 18 per cent of the total 828 families were in this class with respect to income.

family unit has indicated no important differences between the ninety families (index case, psychoneurosis) and the total 828 families with chronic disease.

FAMILY PATTERN OF CHRONIC DISEASE

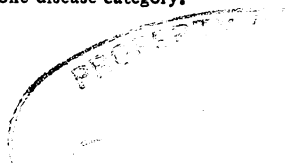
Chronic disease in families may constitute an important environmental factor. Therefore it is important to know the extent to which persons other than the index case in these families were affected by chronic illness. Table 15 compares the percentage of persons in the ninety families who had a chronic condition with that in the total 828 families. The data are shown by type of diagnosis. It is important to emphasize that all index cases have been excluded and that no person in these families is counted in more than one diagnosis class.

It is apparent that persons with chronic illness were more highly concentrated in the ninety families than was true of the total 828 families. Column 3 of Table 15 indicates the ratio of the percentage of persons affected in the total families. These ratios indicate that the ninety families were outstanding because of the presence of psychosis and mental deficiency

Table 15. Percentage of persons with a major chronic condition in two groups of families (index cases excluded), Eastern Health District of Baltimore, June, 1938-May, 1943.¹

DIAGNOSIS CLASS	INDEX CASE PSYCHO- NEUROSIS (90 FAMILIES)	INDEX CASE MAJOR CHRONIC CONDITION (828 FAMILIES)	COLUMN 1
			COLUMN 2
TOTAL	26.98	14.80	1.82
Psychosis and Mental Deficiency	3.81	0.32	11.91
Mental Retardation	0.32	0.14	2.29
Psychoneurosis and "Nervous- ness"	1.90	1.48	1.28
Rheumatic Fever	2.54	1.09	2.33
Heart Disease	4.76	2.64	1.80
Hypertensive Vascular Disease and Arteriosclerosis	3.81	1.72	2.22
Diabetes	0.63	0.35	1.80
Arthritis	2.86	2.67	1.07
All Other Chronic Diseases	6.35	4.39	1.45

¹ No family member is counted in more than one disease category.



among their members. Persons who were classed as mentally retarded, those who had rheumatic fever, and those who had hypertensive vascular disease were also proportionately more frequent in the families selected on the basis of an adult member considered psychoneurotic.

The difference between the two groups of families with respect to the proportion affected by a chronic condition is highly significant. Table 16 shows the observed and expected number of persons with chronic disease in each group of families and the chi-square values obtained.⁷ The probability of such a difference being due to chance variation was entirely negative.

From the epidemiological point of view, the data presented in this paper suggest the need for further investigation along two lines if an understanding of how chronic conditions are produced is to be increased. First, more penetrating and sensitive indices of social environment must be arrived at instead of considering only such indices as family mobility, crowding, home ownership, income, and education. Second, there is need to study and consider the role that may be played by genetic and constitutional factors in influencing family patterns of disease.

Table 16. Observed and expected number of persons with a chronic condition in ninety families (index case psychoneurosis), and in the total 828 families (index case a major chronic condition).

FAMILY CLASSIFICATION	OBSERVED NUMBER	EXPECTED NUMBER	CHI-SQUARE
Index Case Psychoneurosis or Chronic Nervousness			
Persons with a Chronic Condition	85	50.49	23.5794
Persons with No Chronic Condition	230	264.51	4.5013
Index Case a Major Chronic Condition			
Persons with a Chronic Condition	421	455.57	2.6237
Persons with No Chronic Condition	2,421	2,386.43	.5009

$X^2 = 31.2053.$
 $P < .0000001.$

⁷ The chi-square test was applied to test the hypothesis that with respect to chronic illness in other members of the family, the difference between the families of the adult psychoneurotics and the total 828 families from which they were drawn may be due solely to chance.

SUMMARY

This report presents an analysis of the characteristics of psychoneurotics and their families as revealed in the morbidity study made in the Eastern Health District of Baltimore.

The illness experience of persons classed as psychoneurotic indicated that they form a special group. The rate of acute illness suffered by such persons was excessive in all illness categories—that is, respiratory illness, accidental injuries, and all other acute illness. The excess was particularly marked in accidental injuries.

From the epidemiological point of view, persons who were classed as psychoneurotic appear to be especially susceptible to the development of certain conditions, such as hypertensive vascular disease, at relatively young ages.

The ninety families of the psychoneurotic persons were compared with the total 828 families in each of which there was one or more family members affected by some form of chronic illness.

The comparison revealed no important differences between the two groups of families with respect to social environmental factors such as moving, crowding, income, home ownership, and education of persons 20 years of age and older.

It was found, however, that persons with chronic illness were highly concentrated in the ninety families where the index case was one of psychoneurosis. In these families 27 per cent of the other family members had a chronic condition, compared with only 15 per cent in the total 828 families. This difference was found to be highly significant.

Thus, persons classed as psychoneurotic and their families were outstanding because of their illness experience.

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